AudBase

Technical Specifications

Software Requirements:

- *Application*
- *Database*

Hardware Requirements:

- *Server*
- *Client Workstation*

Interface Requirements:

- *Export Formats*
- *HL7 Interface Specifications*

Technical Specifications

Software Requirements:

- ***Application***
- ***Database***

Application Licensing & O/S Requirements

Licensing:

- *AudBase makes use of concurrent licensing**
- *Server package includes 2 concurrent client licenses*
- *License data read by AudBase is encrypted*

***The AudBase Server License package comes with two concurrent client licenses. You may install clients on as many machines as you wish, but the number of clients that can be logged in at the same time depends on the number of licenses you have. If you wish to have more than two clients logged in at the same time, you should purchase additional concurrent client licenses from *AudSoft Inc*.**

AudBase Server runs as a service on:

- *Windows 2000*
- *XP*
- *Server 2003 (Both 32 and 64 bit)*
- *Server 2008 R2 (Both 32 and 64 bit)*
- *Server 2012 R2 (Both 32 and 64 bit)*

Windows 98/ME/NT is not supported.

AudBase Client is compatible with:

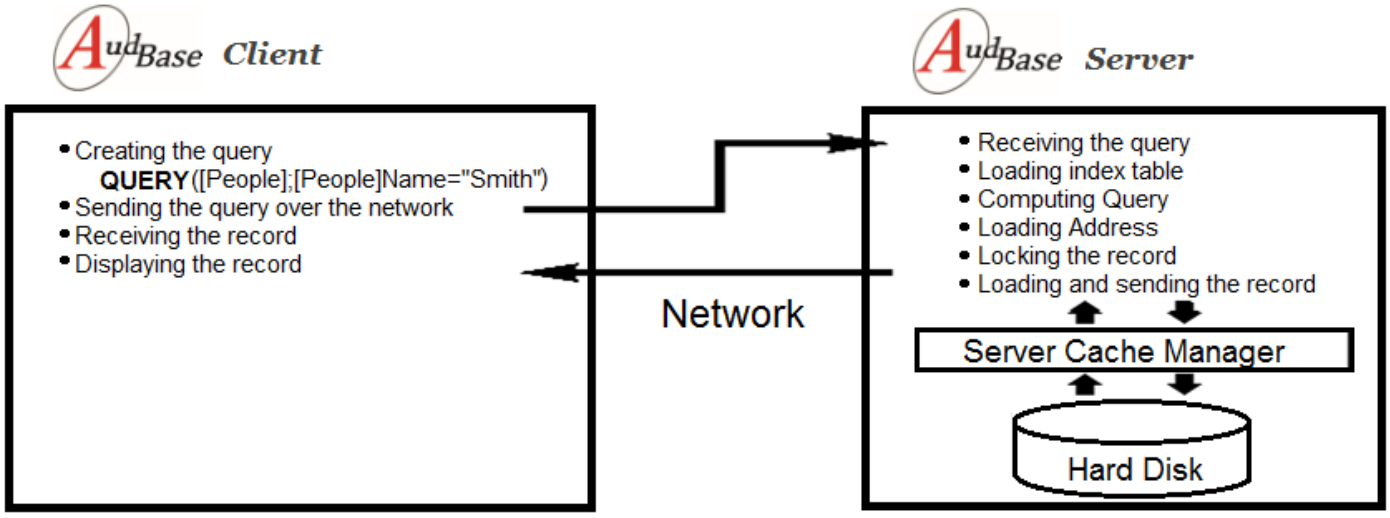
- *Windows 2000*
- *Windows XP*
- *Windows 7 (Both 32 and 64 bit)*

Windows 98/ME is not supported.

Files and Folders installed with AudBase include:

- ***Structure file and associated files.*** *(Executable program and all resources).*
- ***Example data file.*** *This data file uses the default Administrator password and is meant to allow a new user to learn to use the program.*
- ***Documentation.*** *PDF documents including the User manual and Tutorial*
- ***Templates.*** *Templates allow the administrator to add functionality to a data file by importing the template records.*

Typical Workload Allocation between the Client and the Server



Database

- **Enterprise Class 4D compliant (relational) database integrated into the application. http://www.4d.com/**
- **Max Size = 128 GB— Partitionable to 64 2GB segments**
- **Connectivity to other databases via ODBC**
- **Integrated backup utility**
- **Native Data Export Features**
- **Encryption Scheme between Client and Server**
- **Mirrored Server**
- **Database Recovery Tools (4D Tools)**
- **Type of Export Formats.**

  ASCII Text, Comma and Tab delimited Flat Text, PICT., Image formats (pdf, tiff, gif, jpeg, bmp, png, metafile), 4D proprietary formats (Transfer, Sylk, Dif)

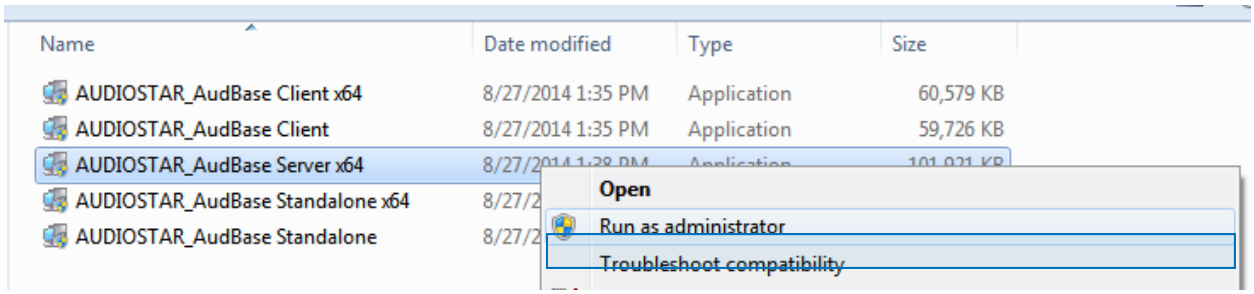
Document Formats							
Documents	**Vector**		**Raster**				
PDF, Document (*.pdf)	Computer Graphics Metafile (*.cgm)	Shape Format ESRI (*.shp)	JPEG (*.jpg)	CALS (*.cal)	EPS (*.eps)	PDF, Raster (*.pdf)	Wireless bitmap (WBMP) (*.wbmp)
Word Doc (*.doc)	Printer Command Language (*.pcl)	Gerber (*.gbr)	JPEG 2000 (*.j2k;*.jp2)	Cineon (*.cin)	EXIF (*.tif)	PGM (*.pgm)	WMF (*.wmf)
Rich Text Format (*.rtf)	Scalable Vector Graphics (*.svg)	Windows Enhanced Meta File (*.emf)	LEAD Wavelet (*.cmw)	CLP (*.clp)	FAX (Raw) (*.fax)	PPM (*.ppm)	WPG (*.wpg)
HTML (*.htm)	AutoCAD DXF (*.dxf)	Windows Meta File (*.wmf)	LEAD (*.cmp)	DICOM DIC Gray (*.dic)	FIT (*.fit)	PSD (*.psd)	XBM (*.xbm)
ASCII Text (*.txt)	AutoCAD DWF (*.dwf)	Mac PICT (*.pct)	TIF (*.tif)	DICOM DIC Color (*.dic)	FLC (*.flc)	PSP (*.psp)	Xionics SMP (*.smp)
	Micrografx (*.drw)	HP-GL2 (*.plt)	GIF (*.gif)	Dr Halo (*.cut)	FPX (*.fpx)	RAW data (*.raw)	XPM (*.xpm)
	Word perfect Graphics (*.wpg)	LEAD Vector (*.vec)	CServe PNG (*.png)	EMF (*.emf)	GEM (*.img)	Scitex Continuous Tone SCT	XWD (*.xwd)

When the 4D Data file reaches close to 2GB, it is time to segment the data file to allow for additional growth. 4D currently allows a maximum of 64 segments (the original segment, plus 63 additional segments). Each segment can grow to 2GB to allow for a 128GB maximum sized database.

64 segmented database:

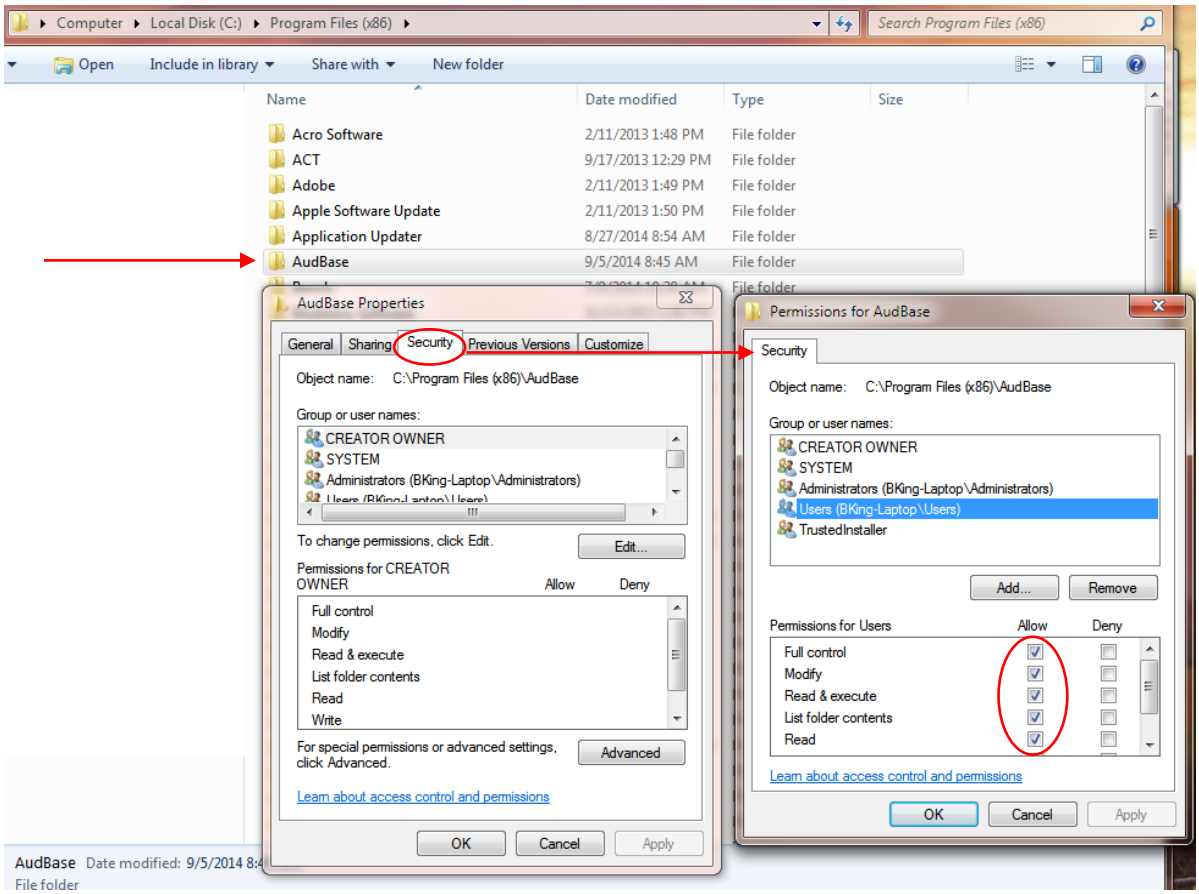
AudBase Server Load Instructions

1. Navigate to where you have the AudBase Server Installer located
    a. <Right click> the application and select “Run as administrator”

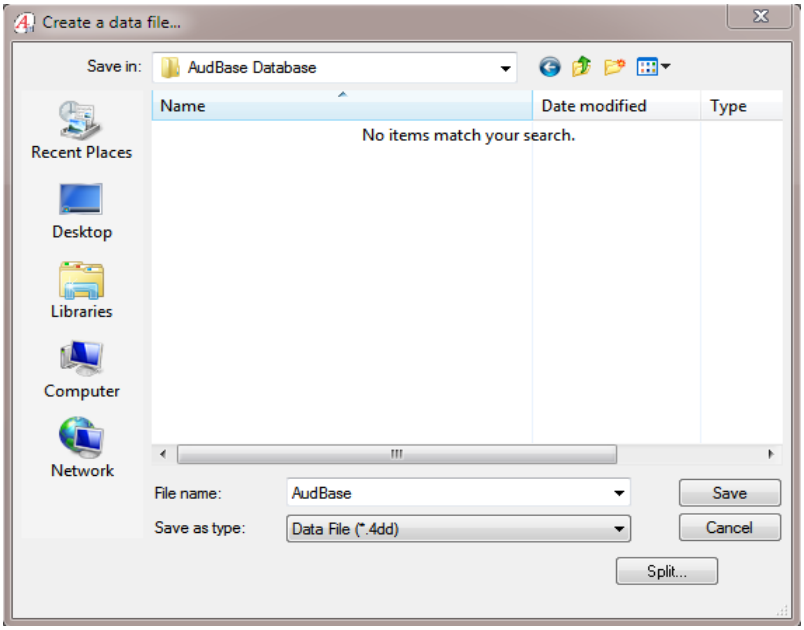


    b. Select “Next” in the Setup dialog window
    c. Agree to the License Agreement, then select “Next” through the next six windows
    d. Once prompted that “AudBase Server x64 has been successfully installed”, click “Finish”

2. Navigate to the “AudBase” folder in Program Files (C:\Program Files (x86)\AudBase)
    a. <Right click> on the folder, select “Properties”
    b. Select the “Security” tab
    c. Click “Edit…”
    d. Select “Users” or “Everyone” (the account that is assigned to anyone using the workstation)
    e. Click on and select “Full control”
    f. Click “Apply” then “OK” and “OK” to navigate back to the “AudBase” folder



3. Double click on the “AudBase” folder in “Program Files (x86)”
    a. Double click on “AudBase Server” folder
    b. <Right Click> on “AudBase Server” Application and select “Run as administrator”
    c. In the next “Open” pop up window, navigate to where you want your AudBase database to be stored
        - For these instructions, they will be in C:\Program Files (x86)\AudBase\AudBase Database
    d. Once in the location you want to save the database to, select the “New” button”



        - That will populate “File name: AudBase” with type “Data File (*.4dd)
    e. Click “Save”

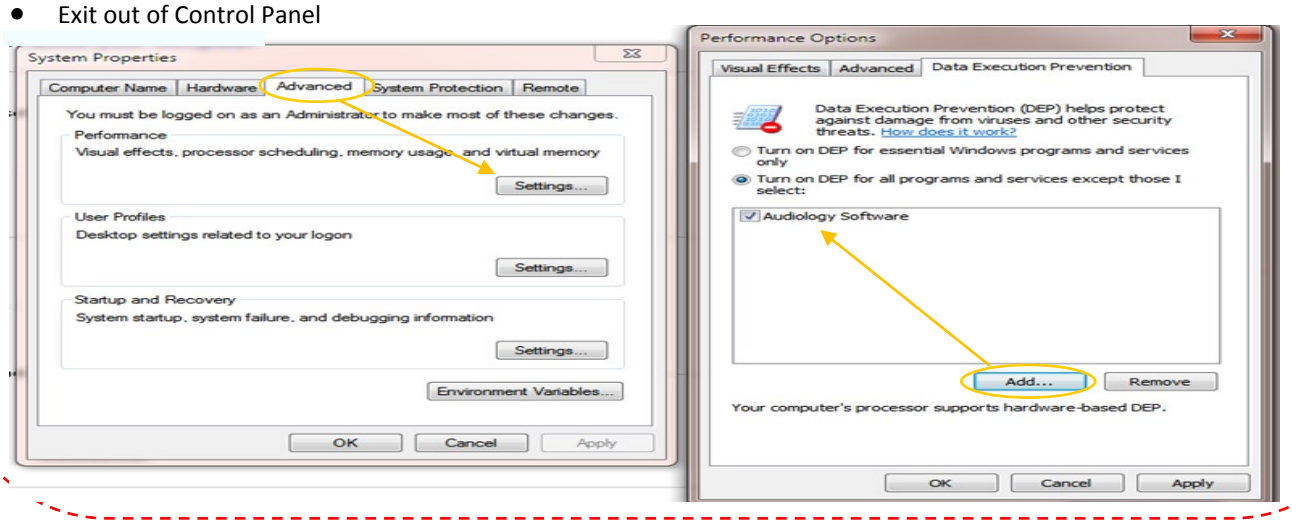
*** IF AUDBASE SERVER STARTS THEN AUTOMATICALLY SHUTS DOWN ***

This typically happens when Data Execution Prevention in Windows is turned on.
The following steps will allow the addition of AudBase to the acceptance list:

- <Right Click> on “My Computer” (or computer name)
- Select “Properties”
- Select “Advanced system settings”
- On the “Advanced” tab, in the “Performance” box, select “Settings”
- In the Performance Options window, select “Data Execution Prevention”

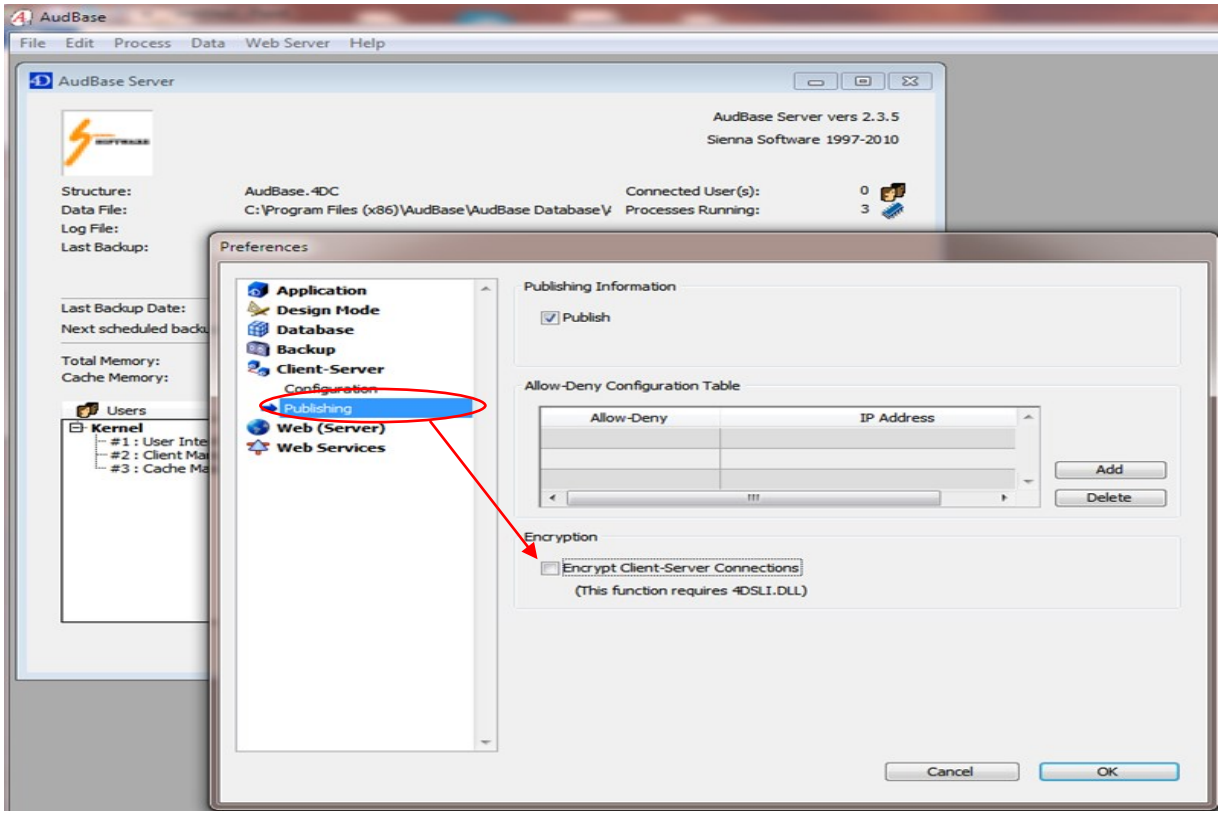
- Select “Add…” and navigate to the AudBase Server executable
    - (C:\Program Files (x86)\AudBase\AudBase Server\AudBase Server.exe
- Click “Apply” then “OK” and “OK”

- Exit out of Control Panel



- Select “Add…” and navigate to the AudBase Server executable
  - (C:\Program Files (x86)\AudBase\AudBase Server\AudBase Server.exe
- Click “Apply” then “OK” and “OK”
- Exit out of Control Panel
- Navigate to the root folder of AudBase Server
  - (C:\Program Files (x86)\AudBase\AudBase Server\
- <Right Click> on “AudBase Server” Application and select “Run as administrator”

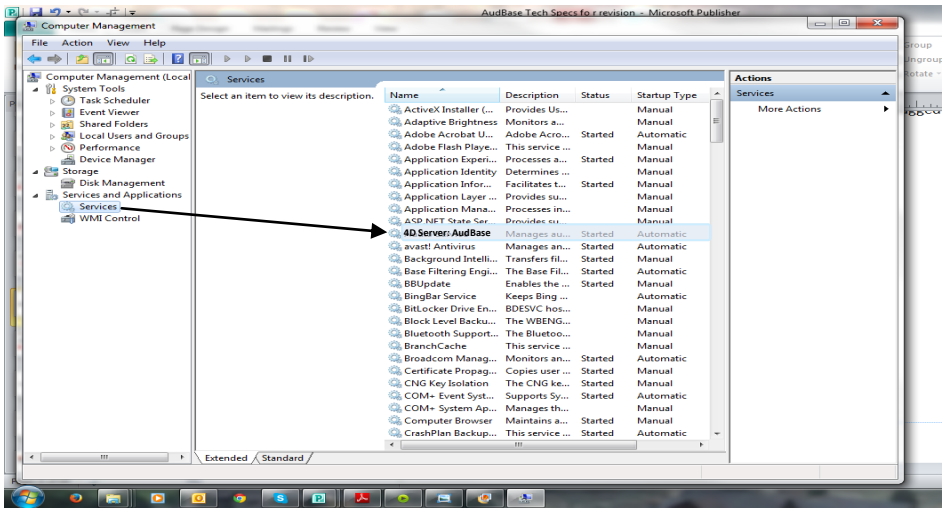
4. Once the AudBase Server console launches, click “Edit” from top toolbar and select “Preferences”
   a. Click “Client-Server” and select “Publishing”
   b. Uncheck “Encrypt Client-Server Connections”
   c. Click “OK”



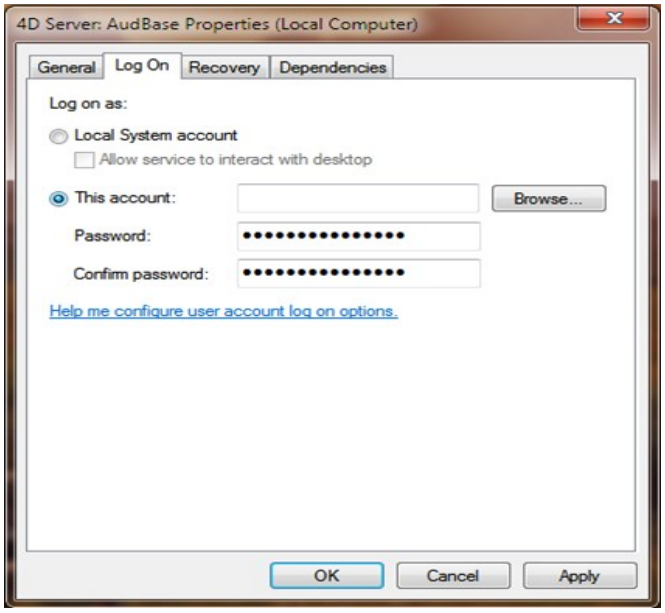
5. From the AudBase Server console, click “File” from top toolbar and select “File”
   a. Click “Register Current Database as Service”
   b. Click “File” again and “Quit”
      i. Select “Disconnect from Server in:” and put “0” for min.
      ii. Click “OK”

Creating the “Local Service Account”

6. <Right Click> on “My Computer” (or computer name)
    a. Select “Manage”
    b. Navigate to “Services”
    c. <Right Click> on “4D Server: AudBase” from the Services list
    d. Select “Properties” and the “Log On” Tab
        i. Select Log on as: “This account:” and enter a LSA Username and Password for the service to run under



    e. Select the “General” tab
        i. For Startup type, select “Automatic (Delayed Start)
        ii. Click on the “Start” button
    f. Exit out of Computer Management console



SERVER LOAD COMPLETE

*** Important note on DEP (Data Execution Prevention)**

Newer systems have the option of using hardware DEP to prevent applications launching "malicious" code. This can cause AudBase to have access violations when attempting to run the first line of any script.

In some instances, Data Execution Prevention can have the unintended consequence of preventing the AudBase software from executing. In these cases, the affected software needs to be flagged as being allowed to execute code as shown on page 6.

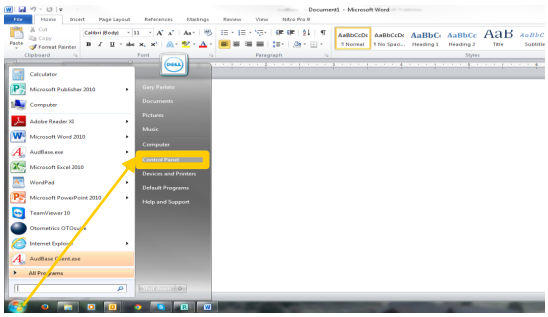
Server Move and Data Migration

In the event of changing servers and migrating the data file the following instructions are to be followed.

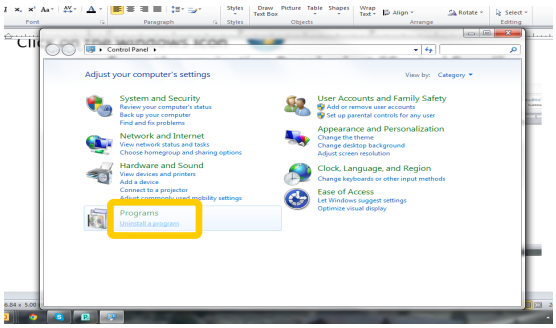
Assuming the AudBase server is in place and operational and making sure all end users have logged out of AudBase and closed the client application.

1. Navigate to the “AudBase” folder in Program Files
   32-bit environment: (C:\Program Files\AudBase)
   64-bit environment: (C:\Program Files (x86)\AudBase)
   a. Select “Database” folder
   b. <Right click> on the folder, select “Copy”
   b. Copy folder to either media such as CD, USB stick, etc.. Or to a share folder on the network.

2. Click on the windows Icon
   a. From the navigation Panel select “Control Panel”



b. Uninstall AudBase Server

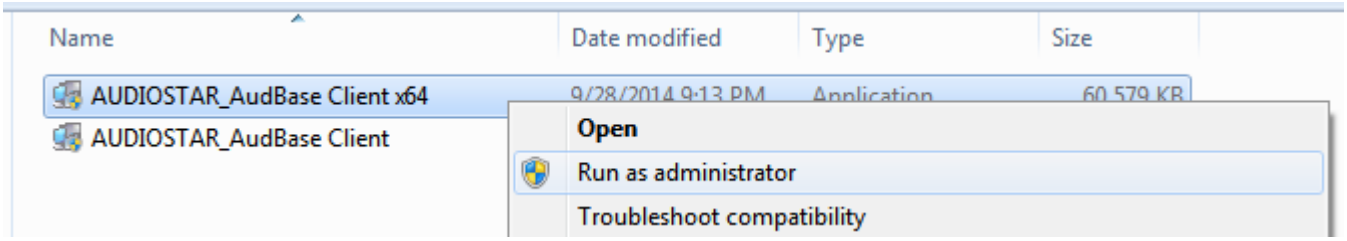


c. Paste the copy of the database into the desired location
d. Reinstall AudBase Server following the Server install instructions
e. Reconfigure Server settings to match the settings in the Uninstalled version

AudBase Client Load Instructions

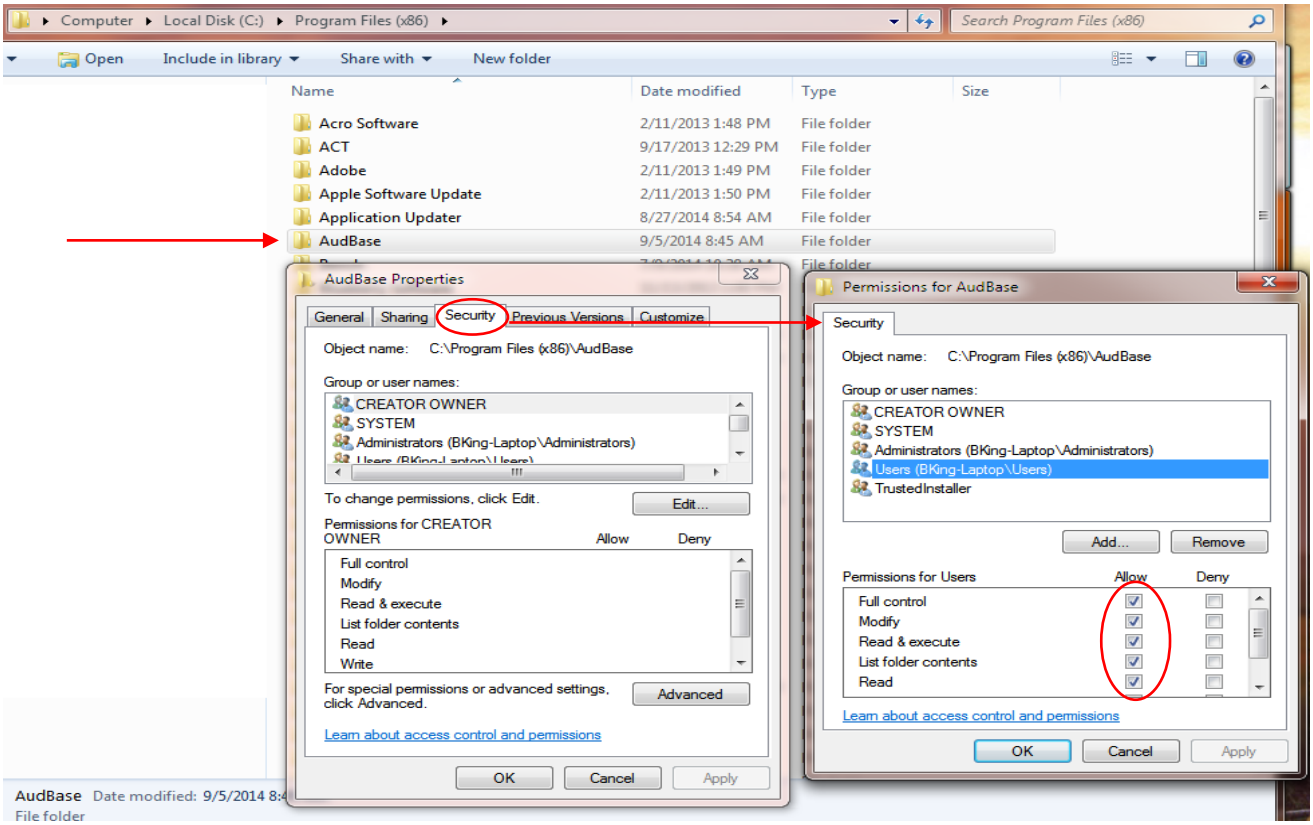
1. Navigate to where you have the AudBase Client Installer located

    a. <Right click> the appropriate application installation file and select “Run as administrator”

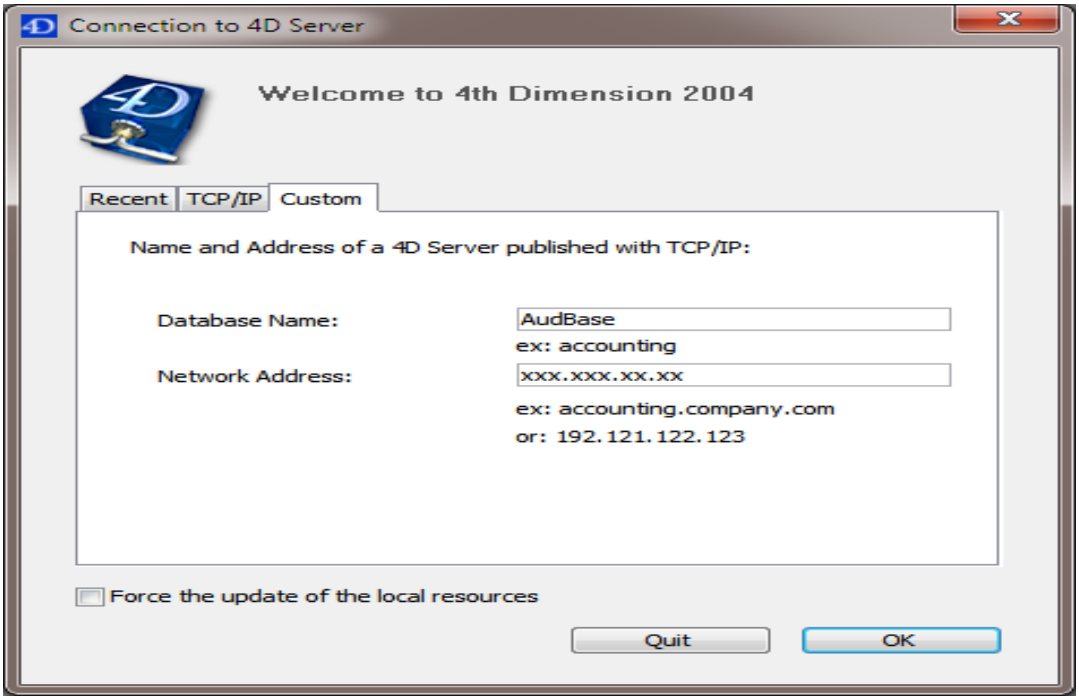


    b. Select “Next” in the Setup dialog window
    c. Agree to the License Agreement, then select “Next” through the next six windows
    d. Once prompted that “AudBase Client x64 has been successfully installed”, click “Finish”

2. Navigate to the “AudBase” folder in Program Files
   32-bit environment: (C:\Program Files\AudBase)
   64-bit environment: (C:\Program Files (x86)\AudBase)
    a. <Right click> on the folder, select “Properties”
    b. Select the “Security” tab
    c. Click “Edit…”
    d. Select “Users” or “Everyone” (the account that is assigned to anyone using the workstation)
    e. Click on and select “Full control”
    f. Click “Apply” then “OK” and “OK” to navigate back to the “AudBase” folder



3. Double click on the “AudBase” folder
    a. Double click on “AudBase Client” folder
    b. <Right Click> on “AudBase Client” Application and select “Run as administrator”
    c. AudBase Client will try to find the AudBase Server, if it doesn’t you will need to point the Client to it
        i. If it does not find the AudBase Server, you will get the “Connection to 4D Server” window
            1. Click on the “Custom” tab
            2. Enter “AudBase” as the Database Name
            3. Enter the IP or DNS of the server for Network Address
            4. Select “OK”



4. Once the AudBase Client launches, you will be asked for Username and Password
    a. This should have been provided for each end user
5. For subsequent log-ins on this workstation, the end user/s) will be able to launch AudBase from the AudBase Client desktop icon and will not be asked for the database name or server IP address.

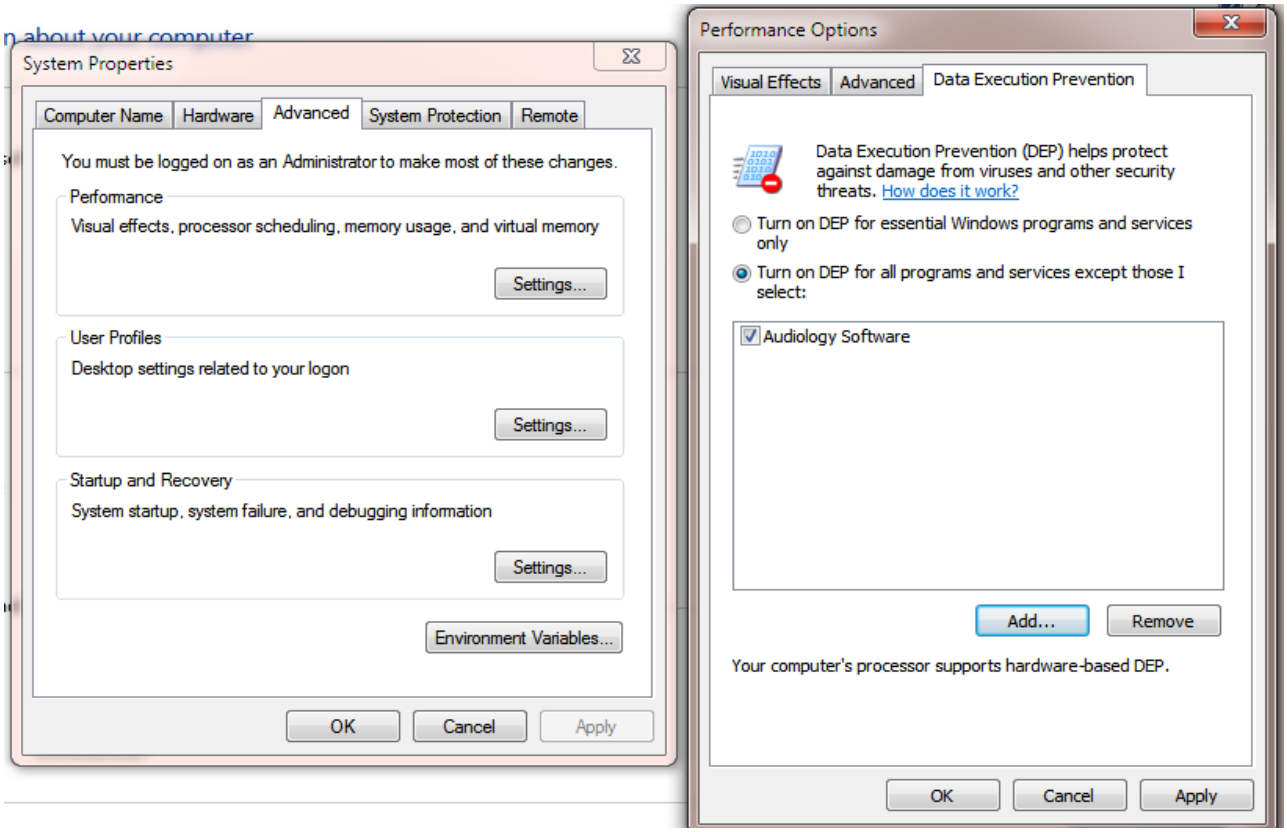
*** AUDBASE CLIENT STARTS THEN AUTOMATICALLY SHUTS DOWN**
See following steps.

* AUDBASE CLIENT STARTS THEN AUTOMATICALLY SHUTS DOWN

This typically happens when Data Execution Prevention in Windows is turned on.
In this case AudBase needs to be added to the Windows “Application acceptance List” by following the listed steps.

- <Right Click> on “My Computer” (or computer name)
- Select “Properties”
- <Right Click> on “AudBase Client” Application and select “Run as administrator”

- Select “Advanced system settings”
- On the “Advanced” tab, in the “Performance” box, select “Settings”
- In the Performance Options window, select “Data Execution Prevention”
- Select “Add…” and navigate to the AudBase Server executable
    - (C:\Program Files (x86)\AudBase\AudBase Client\AudBase Client.exe



Technical Specifications

Hardware Requirements:

- ***Server***
- ***Client Workstation***
- ***Instruments***
- ***Cables and Converters***

Server and Workstation Hardware Specifications

Since most AudBase workstations are intended to collect data from medical testing and measuring instruments, a requirement of the workstation would be a minimum of 4 USB Ports. Two being dedicated to the instruments and two for common peripherals such as the mouse and keyboard. If additional ports for peripherals, such as Hi -Pro programming devices, printers etc.., are needed, they must be accounted for. An external *USB Hub* may be used for additional ports, but not recommended.

AudBase can operate on a thin client as long as port considerations are not needed.

Minimum Hardware Configuration for AudBase 2.3.9x Server and 2.3.9x Workstation

	Processor	Operating System	Recommended System Memory	Hard Disk Dedicated Space	Screen Res.	Com Ports	Data Backup
Client	*PC Compatible with Pentium D or greater processor 2 Core Min.*	*Windows 2000, Windows XP, Windows 7 (32 & 64 bit)*	*1024 MB (3GB Win7)*	*128MB*	*1024*768 pixels*	*Four (4) USB and/or Serial Ports*	*Flat File backup of installation directory /files, or system can Utilize internal backup utility to remote drive/media*
Server	*PC Compatible with Pentium D or greater processor 2 core Min.*	*Windows 2000, Windows XP, Server 2003, Server 2008 (R2) (32 & 64 bit)*	*1024 MB* (4GB Win 2k8)	*1024 MB (4GB Win 2k8) 100 MB initial, estimated 256mb per year growth*		*No USB and/or Serial Ports*	

Integrated Instruments

The Following table contains all instruments that are compatible with AudBase and their respective method of communication or data exchange.

Instrument	Description	Connection/Data Transfer Type	PC Controlled
GSI 1716/61	Audiometer	**Serial (*USB Converter*)	No
GSI AudioStar	Audiometer	XML	No
GSI Tympstar	Tympanometer	**Serial (*USB Converter*)	No
GSI 1738	Aud/Tymp Combination	**Serial (*USB Converter*)	No
GSI 1739	Aud/Tymp Combination	USB	No
InterAcoustics AC40 (old style)	Audiometer	**Serial (*USB Converter*)	No
InterAcoustics AC40 (new style)	Audiometer	XML	No
InterAcoustics Equinox	Audiometer	XML	*Yes
InterAcoustics Affinity	Audiometer	XML	*Yes
InterAcoustics Titan	Tympanometer	XML	No
Maico Easy Tymp	Tympanometer	XML	No
Otometrics Astera	Audiometer	XML	*Yes
Otometrics OtoFlex	Tympanometer	XML	No
Otometrics Aurical (new style via Otosuite)	Audiometer	XML	*Yes
Otometrics Conera (via Otosuite)	Audiometer	XML	*Yes

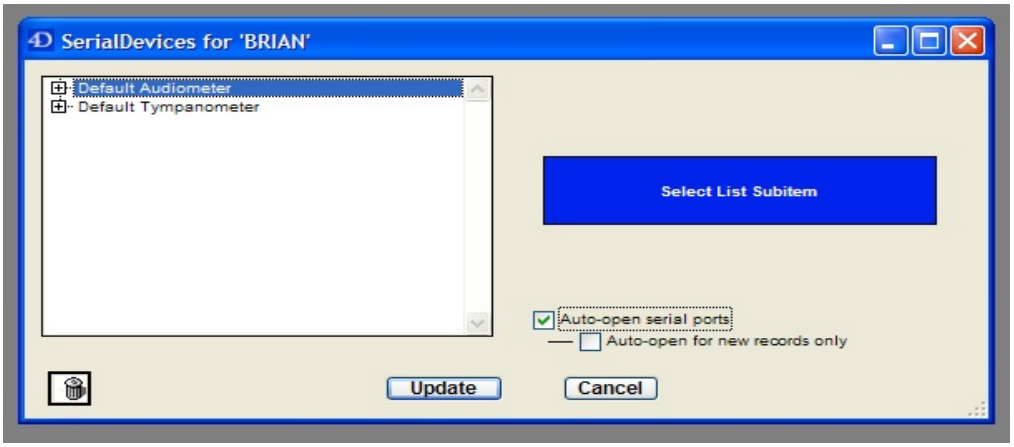
***Instruments that are PC controlled will require the device application or middleware to be loaded on PC.**

****Instruments will have to have Com. ports configured using following instructions**

Communication Port Settings

1. **From Subject List Screen**
   a. **Select File from top Toolbar**
   b. **Select "Preferences"**
   c. **From Preferences Window**
   d. **Select "Audiology (3)"**
   e. **Click "Assignments" Button on right side of window**

The following Window will appear



3. **Click the "+" to the left of "Default Audiometer"**
   a. **There will be three settings:**

Device Name —In right window, select GSI 16/61

Serial Port — In right blue window drop down, select the Com port the Audiometer is attached to.
Only active com ports on computer will be available

Communication Protocol—Protocol: DTR, Buad Rate: 9600, Data Bits: 8, Stop Bits: 1, Parity: None

   b. **Make sure Check mark is in box "Auto-open serial ports"**
   c. **Click "Update Settings" in Blue Box**

4. **Click the "+" to the left of "Default Tympanometer"**
   a. **There will be three settings**

Device Name —Select either Tympstar or GSI33 from right blue window drop down menu

Serial Port — In right blue window drop down, select com port the Tympanometer is attached to
Only active com ports on computer will be available

Communication Protocol —Protocol: DTR, Buad Rate: 9600, Data Bits: 7, Stop Bits: 2, Parity: Even

   b. **Make sure Check mark is in box "Auto-open serial ports"**
   c. **Click "Update Settings" in Blue Box**
   d. **Select "Update" Button at bottom of window**

Close Preferences Window

Tympanometer: Device Settings

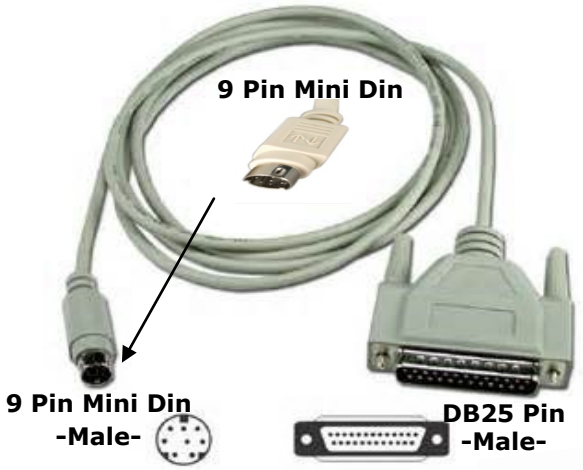
When transferring data, make sure to first hit the "REMOTE" button on the keypad of the unit, "Remote" will appear on the display

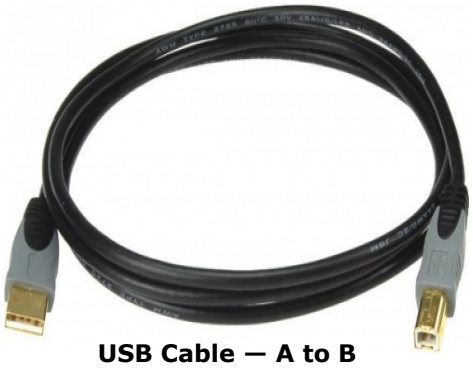
- **On the GSI-33, after you press the "REMOTE" button, select soft key for "Record Type" and choose "Summary + Graphics"**
- **On Tympstar, press "ETF" button, then "RETURN" button.**
  - **Select "INSTRUMENT OPTIONS" softkey**
  - **Select "DATA TRANSFER SETTINGS" softkey**
  - **For "Tymp" change setting to "SUMMARY + GRAPHICS"**
  - **Select "STORE"**

Cables and Converters

The testing instruments used to collect the data to be stored in AudBase will use one of the cables or a combination of the cables pictured below. Special configurations for instruments that employ serial ports, such as the 1761, AC40 and Tympstar are also pictured below.

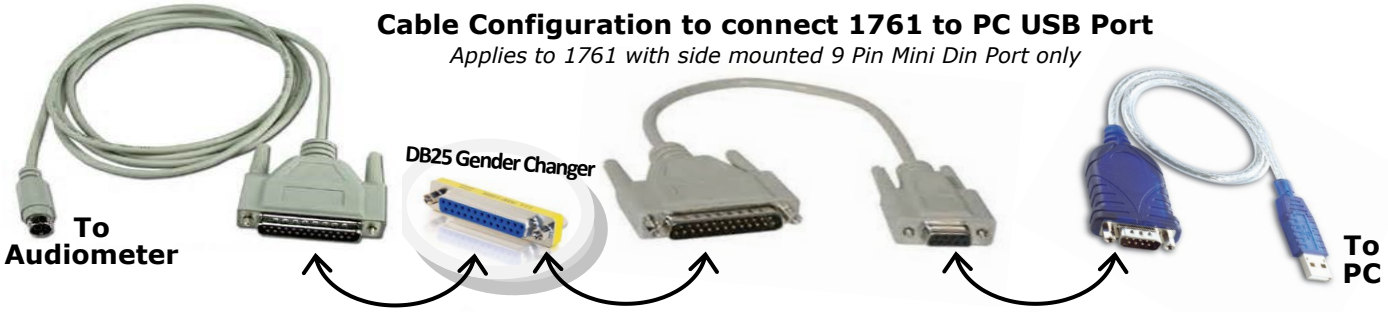
All newer instruments will employ USB ports, which require the USB A to B cable pictured below.



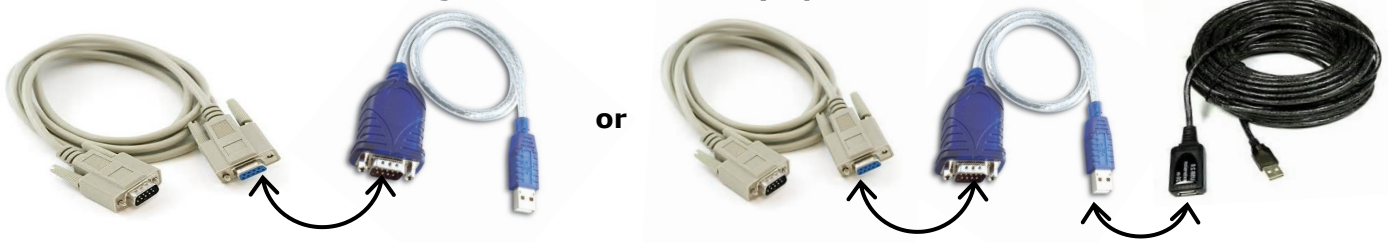


Cable Configuration to connect 1761 to PC USB Port

Applies to 1761 with side mounted 9 Pin Mini Din Port only



Cable Configuration to connect TympStar to PC USB Port



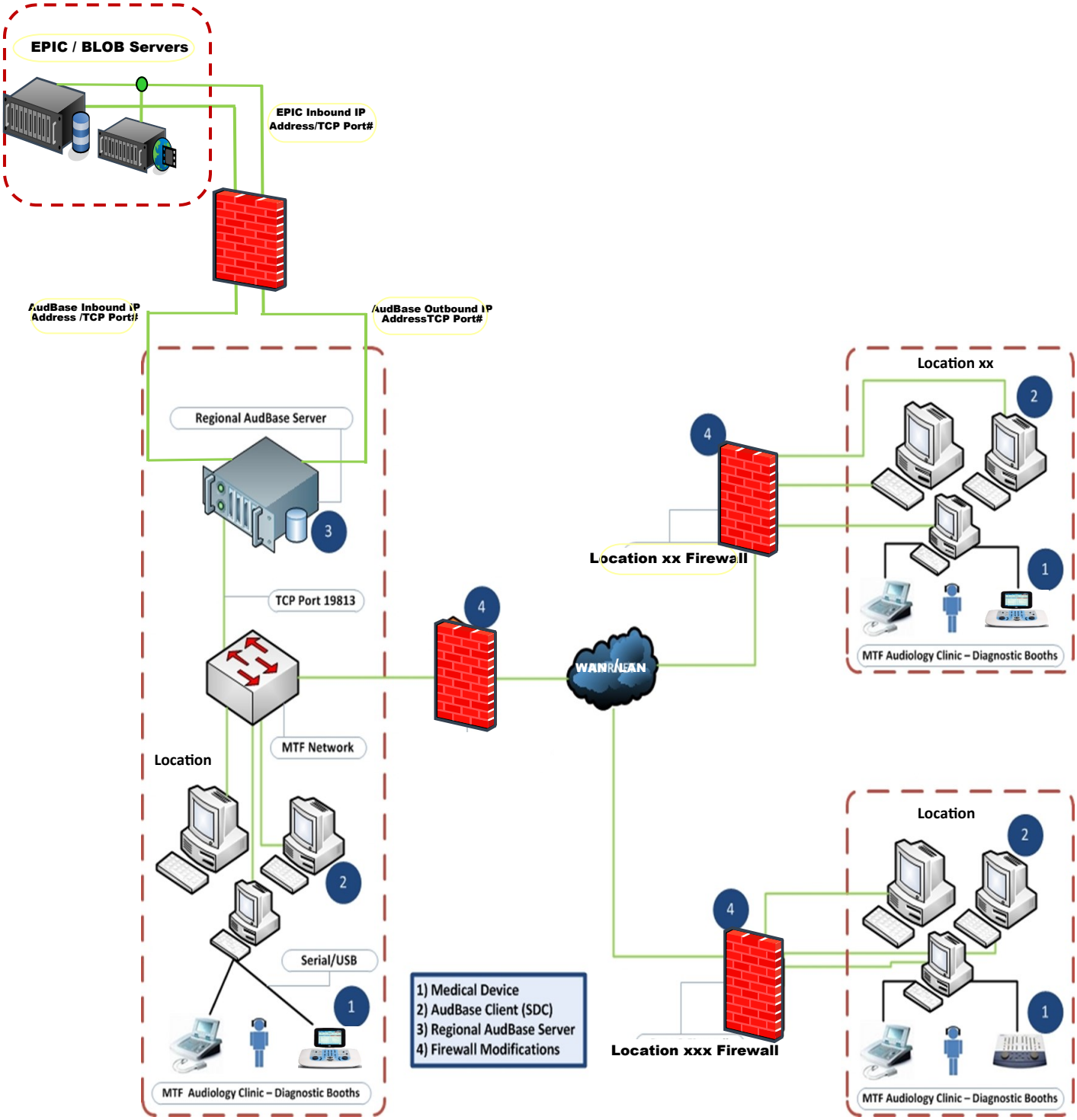
Technical Specifications

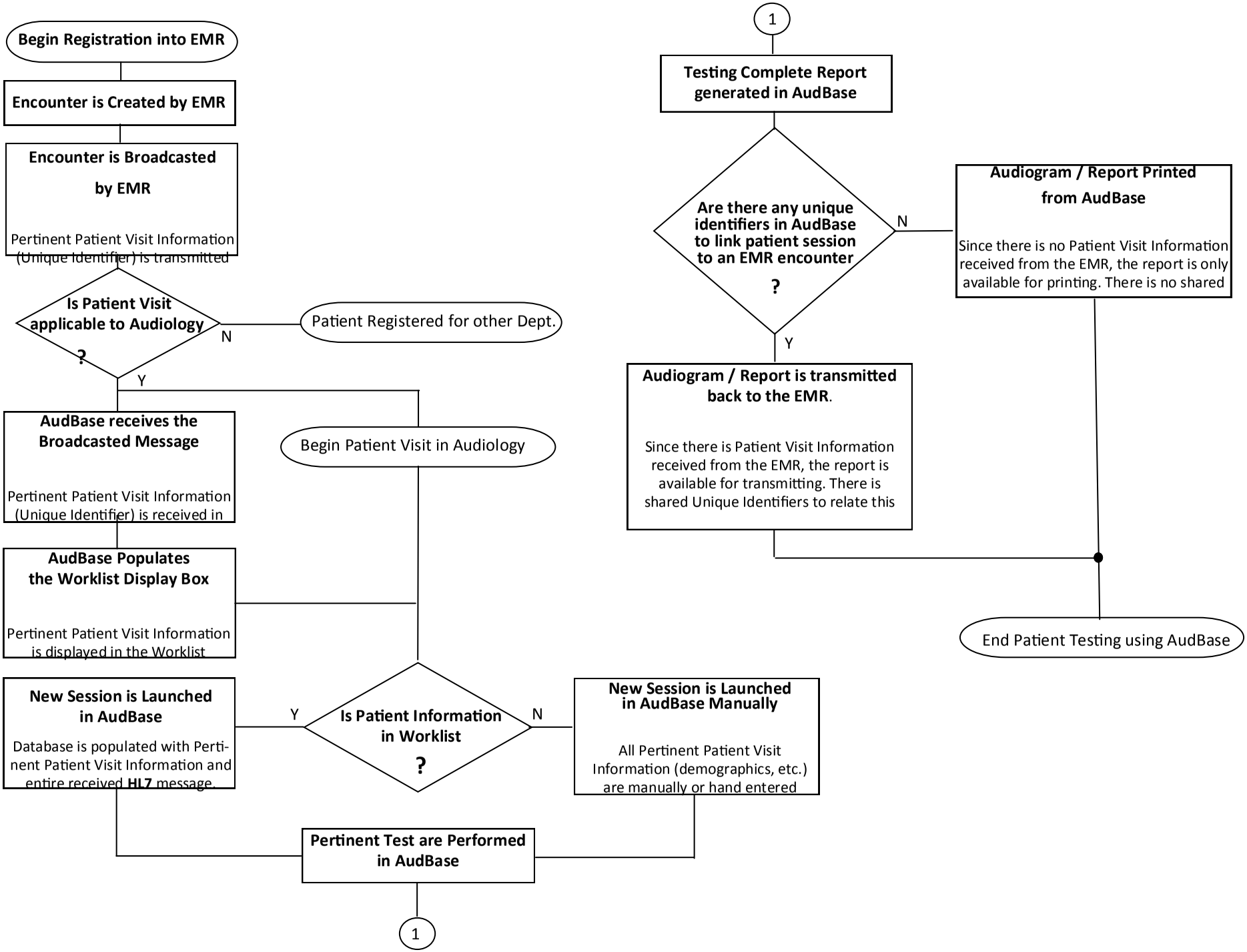
Interface Requirements:

- *Topology*
- *HL7 Interfaces*
- *Export Formats*
- *Instrument Interfaces*

Connectivity Topology

Electronic Medical Record Interface




Begin Registration into EMR
Encounter is Created by EMR
Encounter is Broadcasted by EMR
Pertinent Patient Visit Information (Unique Identifier) is transmitted
Is Patient Visit applicable to Audiology ?
N
Patient Registered for other Dept.
Y
AudBase receives the Broadcasted Message
Pertinent Patient Visit Information (Unique Identifier) is received in
Begin Patient Visit in Audiology
AudBase Populates the Worklist Display Box
Pertinent Patient Visit Information is displayed in the Worklist
New Session is Launched in AudBase
Database is populated with Pertinent Patient Visit Information and entire received HL7 message.
Y
Is Patient Information in Worklist ?
N
New Session is Launched in AudBase Manually
All Pertinent Patient Visit Information (demographics, etc.) are manually or hand entered
Pertinent Test are Performed in AudBase
1
1
Testing Complete Report generated in AudBase
Are there any unique identifiers in AudBase to link patient session to an EMR encounter ?
N
Audiogram / Report Printed from AudBase
Since there is no Patient Visit Information received from the EMR, the report is only available for printing. There is no shared
Y
Audiogram / Report is transmitted back to the EMR.
Since there is Patient Visit Information received from the EMR, the report is available for transmitting. There is shared Unique Identifiers to relate this
End Patient Testing using AudBase

HL7 Interfaces

The **AudBase HL7 Interface** is a fully featured HL7 messaging Interface Engine that is internal to the AudBase application. This feature, integration of interfaces into the application, allows AudBase to directly communicate or interface with other HL7 compliant applications. eliminating the need for any third party software

The AudBase interface engine uses typical HL7 Version 2.3 records, messages, fields, definitions and processing rules. This document will detail how we use HL7, particularly which messages are used, which fields are required and which fields are optional. (*Refer to documentation published elsewhere (i.e., the internet) for more general HL7 information.)*

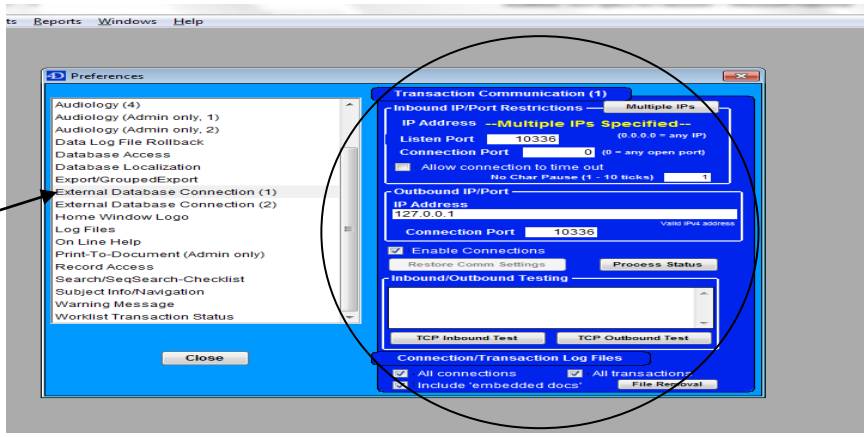
AudBase HL7 Interface supports interfacing via multiple transport protocols or layers:

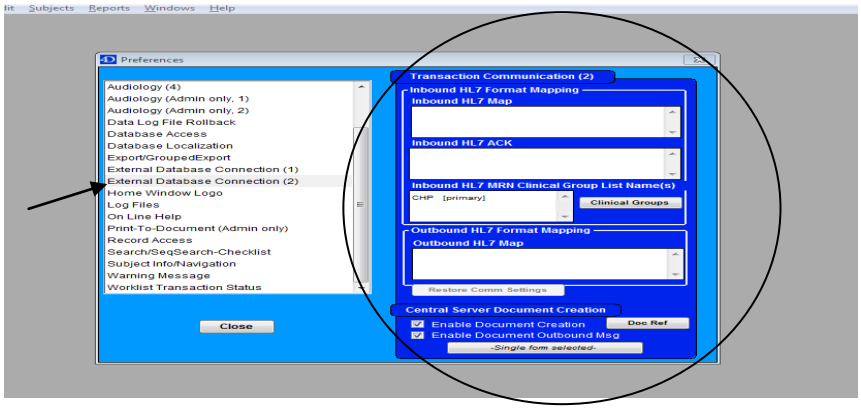
- *TCP/IP - The HL7 Minimal Lower Layer Protocol (MLLP)*
- *File Transport—This is a file based interaction using HL7 messages or Plain Text Files*

The TCP/IP connection on the outbound interface can be set to remain "open" indefinitely or "open" to complete transaction and 'closed" after transaction is completed. Generally the closed state would be after a standard ACK is received from the EHR/EMR.

Typically one socket/port number is dedicated to messages being sent in the same direction (i.e., inbound/outbound) and to/from the same IP address (e.g., typically the same vendor). Acknowledgements for received messages are transmitted back on the same socket/port they were received on.

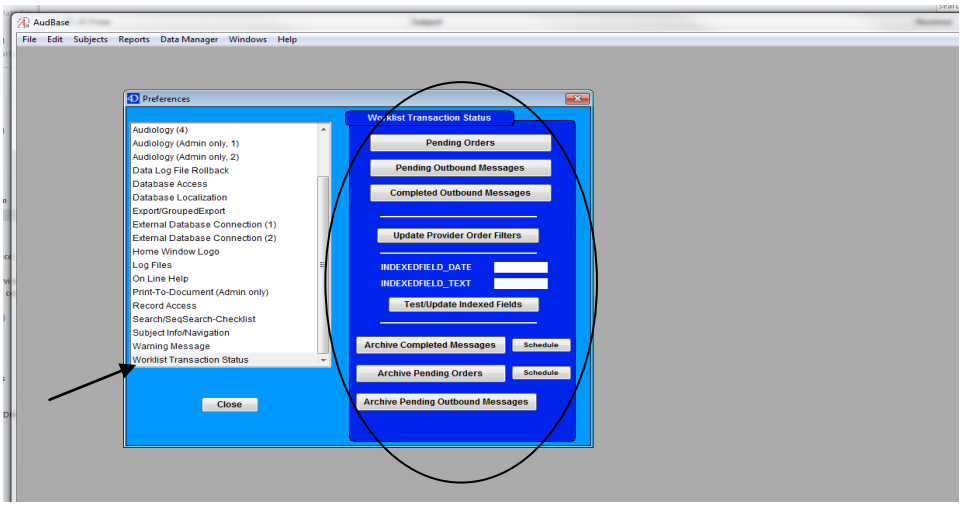
Send/Receive real-time, individual messages with acknowledgement of each message received before next message is sent. Supported messages include ADT, Orders, Scheduling and Document Management.





Administration and monitoring of AudBase HL7 Interface:

- is performed via preference settings located in the administrator menu on the client.
- Additional monitoring and auditing is done via the AudBase Interface transaction logs located in the data file folder on the server.



AudBase has working interfaces in place with the following EHR/EMR companies.

Cerner

Epic

GE Healthcare

CENTRICITY

NEXTGEN
HEALTHCARE INFORMATION SYSTEMS

Allscripts

athenahealth

eClinicalWorks

GREENWAY

The following documentation is organized as follows:

- General HL7 definitions and rules, as implemented by our inbound and outbound interfaces
- HL7 Messages and their segment combinations, as supported by our interfaces
- Detailed information about each support segment, including field descriptions and requirements

HL7 Message Types

The HL7 message types most commonly used by AudBase are listed in the table below in green: Other message types, listed in white, are optional and may be subject to a Development Fee.

Value	Option	DESCRIPTION
ACK	Used	General Acknowledgement
ADT	Used	Admit / Discharge / Transfer
ORM	Used	Order (Treatment)
ORU	Used	Observation Result (Unsolicited)
SIU	O	Scheduling Information Unsolicited
MDM	O	Medical Document Management
ORR	O	Order acknowledgment (positive)

Message Types:

- **ACK – General acknowledgement—**Every transaction between AudBase and the EHR/HIS (EMR) requires an ACK as to the success of the processing of the transaction.
- **ADT – Admit / Discharge / Transfer—**An ADT is created by a patient status change and AudBase uses the message contents to update patient status. (Add to AudBase Worklist, delete from Worklist, update the patient demographics, etc.)
- **ORM – Order (Treatment)—**An Order message is processed by AudBase in much the same fashion as an ADT message. An Order is much more precise in defining a treatment or a procedure and uses a unique identifying number, which allows both AudBase and the EMR to reference the encounter.
- **ORU – Observation result (Unsolicited)—**AudBase will result report/findings to EHR/HIS (EMR) with an embedded image (MIME 64 or Base 64), text or UNC path to share (link).
- **SIU – Scheduling information unsolicited—**Order is processed in much the same fashion as an ADT. This message type also contains all info pertaining to the visit and visit schedule.
- **MDM – Medical Document Management —**AudBase will result report/findings to EHR/HIS as a "Medical Document" type in the OBX segment of the MDM message. The T02 event (new document notification) is the most common and most preferred event when using an MDM.
- **ORR — Order Acknowledgement—** AudBase will use to Acknowledge successful processing of an order message (ORM)

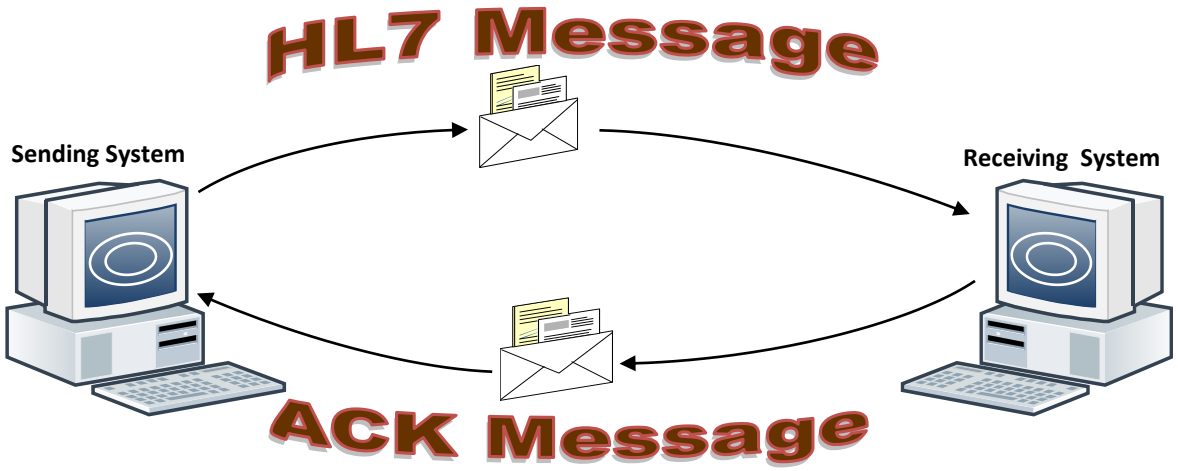
Message Acknowledgements

An important part of the HL7 standard is the Acknowledgment protocol. Every time an application accepts a message and consumes the message data, it is expected to send an Acknowledgment message back to the sending application. The sending application is expected to keep on sending a message until it has received an ACK message.

Every HL7 message AudBase receives from the EHR/HIS system is part of a two-way communication system. A message that is sent to AudBase is followed by an acknowledgement message sent from AudBase to the EHR and vice versa. Acknowledgments, known in the HL7 world as ACKs, let the sending EHR/HIS system know that their original message was successfully received and processed.

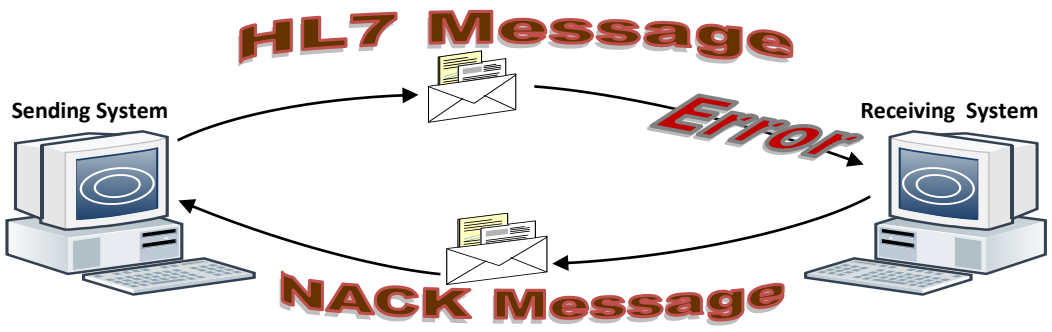
AudBase uses the HL7 standard Acknowledgment protocol. AudBase will place the AA (Application Acknowledgment as shown in HL7 Table#1) value in the first field of the MSA segment to indicate a positive ACK. This code indicates that the message has been received and processed without any issues.

This two-way communication is demonstrated in the following diagram:



Negative Acknowledgments (AE and AR) known as NACKs, informs the sending system that there was an error in the structure message or the system erred while processing the message.

Acknowledge Status	Meaning
AA	**Positive acknowledgment: the message was successfully processed.**
AE	**Application error: there is a problem processing the message. The sending application must correct the problem before attempting to resend the message.**
AR	**Application reject: there is a problem with field 9, field 11 or field 12 of the MSH segment of the incoming message, or there is a problem with the receiving application that is not related to the message or its structure.**



HL7 ACK Message – Message Acknowledgment

SEGMENT/GROUP	ELEMENT NAME	Optional
1	Set ID - AIS	Required
2	Segment Action Code	Optional
3	Universal Service Identifier	Required
4	Start Date/Time	Optional
5	Start Date/Time Offset	Optional
6	Start Date/Time Offset Units	Optional
7	Duration	Optional
8	Duration Units	Optional
9	Allow Substitution Code	Optional
10	Filler Status Code	Required

AudBase will use the Message Control ID, which is specified in field 10 of the MSH segment, as shown on page #, Is a unique identifier that is associated with a particular HL7 message. When a message is processed and acknowledged, field 10 of the MSH segment of the acknowledgment message contains the same identifier as the message that it is acknowledging. This is how applications can keep track of what messages have been successfully acknowledged.

The MSA segment indicates whether the message that is being acknowledged was processed successfully. The first field of the MSA segment contains the acknowledge status, which is one of the following listed in Table #1:

HL7 TABLE #1 - ACKNOWLEDGEMENT CODE

VALUE	DESCRIPTION
AA	APPLICATION ACCEPT
AE	APPLICATION ERROR (Accept and store Error)
AR	APPLICATION REJECT
CA	COMMIT ACCEPT
CE	COMMIT ERROR
CR	COMMIT REJECT

EVENT

A trigger event is the underlying reason for transmitting a message. A change or update in the patient status, such as patient admission or a change in demographics will cause a trigger event. Even though the standard itself doesn't explicitly define a sequence in which these trigger events occur, it seems clear that normally a patient has to be admitted (A01) before transfer (A02) and discharge (A03). As soon as the appropriate trigger happens, a message is sent to AudBase. Several (incoming) admission events are supported by the AudBase interface. Event details are contained within the Event segment of the ADT.

ADT trigger events that AudBase will process:

EVENT	TRIGGER	TRIGGER DESCRIPTION
A01	**Admit notification**	an inpatient encounter has started. The patient has been admitted and has been assigned to a location (room or bed)
A02	**Transfer notification**	a patient has been transferred from one location to another one.
A04	**Patient registration notification**	an outpatient encounter has started
A05	**Pre-admit a patient notification**	the pre-admission process of a patient has started; registration of a non-admitted patient
A08	**Update patient information notification**	unspecified details of the encounter or the patient demographics data have changed. This trigger event represents a "other changes" category if a more suitable Axx trigger event doesn't exist
A28	**Addition to person demographics / information**	Addition of information to the patient demographics , which will appear in the PID segment in the message.
A31	**Update of person demographics / information**	Update / change of information to the PID segment in the message which is reflected in the patient demographics

Order Message (ORM) trigger events that AudBase will process:

EVENT	TRIGGER	TRIGGER DESCRIPTION
O01	**Request for Service**	New order, change to an order, information updates, service cancellation etc...

Scheduling Message (SIU) trigger events that AudBase will process:

EVENT	TRIGGER	TRIGGER DESCRIPTION
SIU-S12	**New Appt. Notification**	Notification of new appointment booking
SIU-S14	**Appt. Modification Notification**	Notification of appointment modification
SIU-S17	**Appt. Deletion**	Notification of appointment deletion
SIU-S18	**Addition to Scheduled Appt.**	Notification of addition of service/resource on appointment

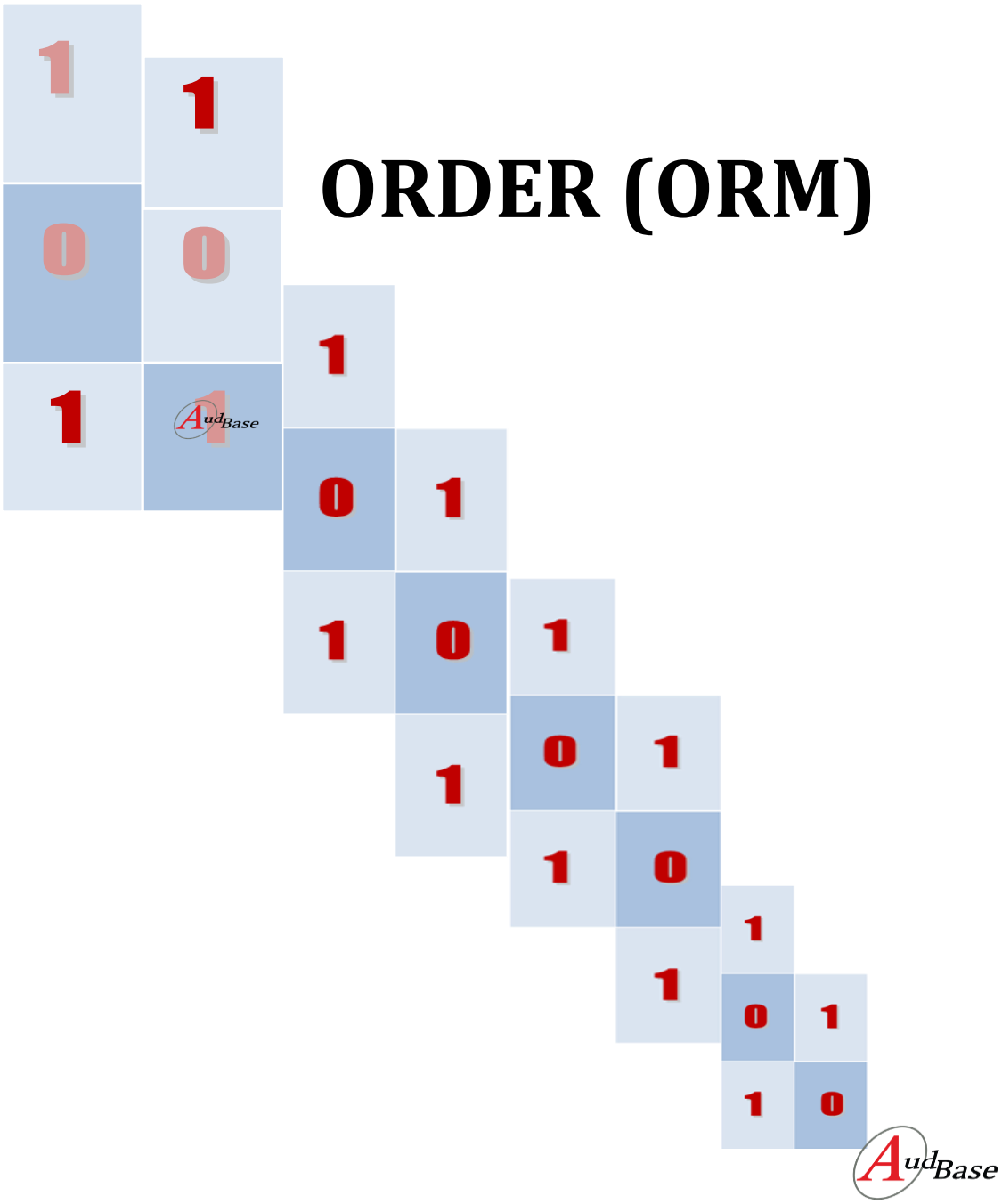
Medical Document Management Message (MDM) trigger events that AudBase will process:

EVENT	TRIGGER	TRIGGER DESCRIPTION
T02	**original document notification and content**	Notification of the creation of a document with some form of accompanying content
T04	**document status change notification and content**	Notification of a change in a status of a document with some form of accompanying content
T10	**document replacement notification and content**	Errors discovered in a document are corrected. The original document is replaced with the revised document.

HL7 TABLE - EVENT TYPE CODE

ADT Events list:

Value	Option	Description
A01	USED	ADMIT A PATIENT
A02	USED	TRANSFER A PATIENT
A03	OPTION	DISCHARGE A PATIENT
A04	USED	REGISTER A PATIENT (Outpatient Encounter)
A05	USED	PREADMIT A PATIENT
A06		TRANSFER AN OUTPATIENT TO INPATIENT
A07		TRANSFER AN INPATIENT TO OUTPATIENT
A08	USED	UPDATE PATIENT INFORMATION
A09		PATIENT DEPARTING
A10	USED	PATIENT ARRIVING
A11		CANCEL ADMIT
A12		CANCEL TRANSFER
A13		CANCEL DISCHARGE
A14		PENDING ADMIT
A15		PENDING TRANSFER
A16		PENDING DISCHARGE
A17		SWAP PATIENTS
A18		MERGE PATIENT INFORMATION
A19	USED	PATIENT, QUERY
A20		NURSING/CENSUS APPLICATION UPDATES
A21		LEAVE OF ABSENCE - OUT (LEAVING)
A22		LEAVE OF ABSENCE - IN (RETURNING)
A23		DELETE A PATIENT RECORF
A24		LINK PATIENT INFORMATION
A25		CANCEL PENDING DISCHARGE
A26		CANCEL PENDING TRANSFER
A27		CANCEL PENDING ADMIT
A28		ADD PERSON INFORMATION
A29		DELETE PERSON INFORMATION
A30		MERGE PERSON INFORMATION
A31		UPDATE PERSON INFORMATION
A32		CANCEL PATIENT ARRIVING
A33		CANCEL PATIENT DEPARTING
A34		MERGE PATIENT INFORMATION - PATIENT ID ONLY
A35		MERGE PATIENT INFORMATION - ACCOUNT NUMBER ONLY
A36		MERGE PATIENT INFORMATION - PATIENT ID AND ACCOUNT NUMBER
A36		MERGE PATIENT INFORMATION - PATIENT ID AND ACCOUNT NUMBER


ORDER (ORM)
AudBase
AudBase

HL7 ORM–Order Message

With respect to the AudBase interface the HL7 ORM-O01 message functions as a general order message. Trigger events for the ORM-O01 message involve changes to an order such as new orders, cancellations, information updates, discontinuation, etc.

SEGMENT/ GROUP	NAME	OPTIONAL
MSH	Message header	Required
NTE	Notes and comments	Optional
Patient Group – Optional group (Required for new orders pertaining to a patient only)		
PID	Patient identification	Required
PID1	Patient demographics	Optional
NTE-1	Notes and comments	Optional
Patient Visit Group – Optional group, part of Patient Group		
PV1	Patient visit	Required
PV2	Patient visit – additional info	Optional
Insurance Group – Optional group, part of Patient Group		
IN1	Insurance	Unused
IN2	Insurance additional info	Unused
IN3	Insurance additional info certification	Unused
GT1	Guarantor	Optional CF
AL1	Patient allergy information	Unused
Order Group		
ORC	Common order	Required
OBR	Observation request	Required
NTE-2	Notes and comments	Optional CF
DG1	Diagnosis	Optional
Observation Group – part of Order Detail Group		
OBX	Observation	Optional
NTE-3	Notes and comments	Optional CF
Order Group continued		
CTI	Clinical trial identification	Optional CF
BLG	Billing	Optional CF

(R) Mandatory Segments /Groups included by AudBase in the result message. (N/A) Will not be employed by AudBase.

Optional — Optional fields that may be included if noted in the message design form at no additional charge.
Optional CF— Optional fields that may be requested to be included in message, which may require an additional customization fee.

(ORM) Order Message— Event Type O01

Message Header

Element number 1 2 3 4 5 6 7 8 9 10 11 15

```
MSH|^~\&||EPIC||AUDBASE|20140429085630|MMOUSE|ORM^O01|3806|P|||||||
```

PID — Patient Identification

Element number 1 2 3 4 5 6 7 8 9

```
PID|1||H1686001||^CRISTIANA^AMMAR|HERMIS^SAVLEEN|20110604|F|YAKYAKA
```

Element number 10 11

```
^CRISTIANA|Other|1127 EEEEEED AVE^^EL CAAON^CA^92020-7362
```

Element number 12 13

```
^USA^^^SAN DIEGO|SAN DIEGO|(XXX)XXX-9287 ^^^^^XXX^XXX-9287
```

Element number 14 16 17 18 19 20 21

```
|||Single||81637928|999-99-9999||HERMIS^SAVLEEN||
```

PV1 — Patient Visit

Element number 1 2 3 4 5 6 7 8

```
PV1||OUTPATIENT|AUDIOLOGY MAIN^^^10|||||1011
```

Element number 8 9 18 19 20 25 30 35 40 43

```
^YOSIMITES^SAMS||||||||||81637928|||||||||||||||||||||||
```

Element number 44 45 49

```
201404290856||||||
```

ORC — Order Common

Element number 1 2 3 4 5 6 7 8 9

```
ORC|NW|36000000^EPC||81999999|||^^^20140429^^R||201404290856|
```

Element number 10 11 12

```
MICKE^GREAT^MOOSE^CANDYMANIA||13085^SALSALO^PAMELA|
```

Element number 13 14

```
100101037^^^100101^^^^^AUDIOLOGY MAIN|(XXX)XXX-7701
```

Element number 15 17 18 19 25 29

```
^^^^^XXX^XXX7701 ||||BOB4504A^BOB4504A||||||||||O||||
```

OBR — Observation Request

Element number 1 2 3 4

```
OBR|NW|36000000^EPC||AUD00027^STANDARD HEARING TEST^AUDSFT^^ST
```

Element number 5 6 11 16 17

```
HEAR TEST||20140429|||||N|||||13085^SALSALO^PAMELA|(XXX)XXX-7701
```

Element number 20 24 27 30 40

```
^^^^^XXX^XXX7701|||||||Audiology|||^^^20140429^^R||||||||||||||
```

Element number 43

```
|||
```

Message Header

The HL7 MSH (Message Header) segment is present in every HL7 message type and defines the message's source, purpose, destination and character sets. It is always the first segment in a single HL7 message. AudBase will make use of the header information such as Event Type, Date and Time, location origin of message, sending application (HIS) and Message Control ID.

Message Header

Element number 1 2 3 4 5 6 7 8 9 10 11 12 14 17

```
MSH|^~\&||EPIC||AUDBASE|20140429085630|MMOUSE|ORM^O01|3806|P|||||||
```

SEQ	Format	Option	Element / Field Name
1	ST	R	Field Separator
2	ST	R	Encoding Characters
3	HD	R	Sending Application
4	HD	R	Sending Facility
5	HD	O	Receiving Application
6	HD	O	Receiving Facility
7	TS	R	Date/Time of Message
8	ST	O	Security
9	CM_MSG	R	Message Type
10	ST	R	Message Control Id
11	PT	R	Processing Id
12	ID	R	Version Id
13	NM	O	Sequence Number
14	ST	O	Continuation Pointer
15	ID	O	Accept Acknowledgement Type
16	ID	O	Application Acknowledgement Type
17	ID	O	Country Code
18	ID	O	Character Set
19	CE	O	Principal Language of Message

Encoding Characters (SEQ #2)

Character	Name	Purpose
|	Field separator (pipe)	Separates fields in a message
^	Component separator (hat)	Separates components in a field
~	Field repeat separator	Separates repeated fields in a segment
\	Escape character	Used to signal special characters in a field of text (i.e. \H\ = start highlighting; \F\ = component sepa-
&	Sub-component separator	Separates components within components (see Data Types)

PID — Patient Identification Segment

The PID segment is found in every ORM message and contains 30 different fields with values ranging from patient ID number, to address, to marital status. The PID segment provides important identification information about the patient and is used as the primary means of communicating the identifying and demographic information about a patient between systems. AudBase will make use of the pertinent demographics within the PID Segment

PID — Patient Identification Segment

Element number 1 2 3 4 5 6 7 8 9 10

PID|1||10006579^^^1^MRN^1||DUCK^DONALD^D||19241010|M||1|111 DUCK

Element number 11 12 13 14 15 18

ST^^FOWL^CA^999990000^^M|1|8885551212|8885551212|1|2||40007716^^^AudBase^VN^1

Element number 19 21 25 30

|123121234|||||||||||NO

SEQ	Format	Option	Element / Field Name
0		R	Segment ID = "PID"
1	SI	O	Set ID - Patient ID
2	CX	O	Patient ID (External ID)
3	CX	R	Patient ID (Internal ID)
4	CX	O	Alternate Patient ID - PID
5	PN	R	Patient Name
6	PN	O	Mother's Maiden Name
7	TS	R	Date/Time of Birth
8	IS	R	Sex
9	PN	O	Patient Alias
10	IS	R	Race
11	AD	O	Patient Address
12	IS	O	County Code
13	TN	O	Phone Number - Home
14	TN	O	Phone Number - Business
15	CE	O	Primary Language
16	IS	O	Marital Status
17	IS	O	Religion
18	CX	R	Patient Account Number
19	ST	O	SSN Number - Patient
20	ST	O	Driver's License Number - Patient
21	CX	O	Mother's Identifier
22	IS	O	Ethnic Group
23	ST	O	Birth Place
24	ID	O	Multiple Birth Indicator
25	NM	O	Birth Order
26	IS	O	Citizenship
27	CE	O	Veterans Military Status
28	CE	O	Nationality
29	TS	O	Patient Death Date and Time
30	ID	O	Patient Death Indicator

PV1 — Patient Visit

The PV1 Patient Visit segment contains information about the encounter (a.k.a. Visit). This segment includes, amongst other things, the type of encounter, its start/end date and time, the admitting and attending physicians. AudBase will use data from this message to populate fields within the provider table of the AudBase database.

PV1 — Patient Visit

Element number 1 2 3 4 5 6 7

```
PV1|1|I|Audiology^101^1^1^^^S|3|||37^DISNEY^WALT^^^^^^AudBase^^
```

Element number 8 9 10 14 17 18 19

```
^^CI|||01||||1|||37^DISNEY^WALT^^^^^^AudBase^^^^CI|2|40007716^^
```

Element number 20 25 30 35 39 40 43 44 45 49

```
^AudBase^VN|4|||||||||||||||||||1||G|||20050110045253||||||
```

SEQ	Format	Option	Element / Field Name
0		R	Segment ID = "PV1"
1	SI	O	Set ID - PV1
2	IS	R	Patient Class
3	PL	R	Assigned Patient Location
4	IS	O	Admission Type
5	CX	O	Pre-admit Number
6	PL	O	Prior Patient Location
7	CN	R	Attending Doctor
8	CN	R	Referring Doctor
9	CN	O	Consulting Doctor
10	IS	O	Hospital Service
11	PL	O	Temporary Location
12	IS	O	Pre-admit test Indicator
13	IS	O	Readmission Indicator
14	IS	O	Admit Source
15	IS	O	Ambulatory Status
16	IS	O	VIP Indicator
17	CN	O	Admitting Doctor
18	IS	O	Patient Type
19	CX	O	Visit Number
20	FC	O	Financial Class
21	IS	O	Charge Price Indicator
22	IS	O	Courtesy Code
36	IS	O	Discharge Disposition
37	CM	O	Discharged to Location
38	IS	O	Diet Type
42	PL	O	Pending Location
43	PL	O	Prior Temporary Location
44	TS	O	Admit Date/Time
45	TS	O	Discharge Date/Time
46	NM	O	Current Patient Balance
47	NM	O	Total Charges
48	NM	O	Total Adjustments
49	NM	O	Total Payments
50	CX	O	Alternate Visit ID
51	IS	O	Visit Indicator
52	CN	O	Other Healthcare Provider

SEQ #s 23-35 are related to financial transactions and are not included in this *list of elements* as options. If financial information is required please reflect in order form

ORC — Order Common

The Common Order segment (ORC) is used to transmit fields that are common to all orders (all types of services that are requested). The ORC segment is required in the Order (ORM) message. ORC is mandatory in Order Acknowledgment (ORR) messages if an order detail segment is present, but is not required otherwise.

ORC — Order Common

Element number 1 2 3 4 5 6 7 8 9

```
ORC|NW|36146391^EPC||81999999|||^^^20140429^^R||201404290856|
```

Element number 10 11 12

```
MICKE^GREAT^MONEY^CANDYMANIA||13085^SALSALO^PAMELA|
```

Element number 13 14

```
100101037^^^100101^^^^^AUDIOLOGY MAIN|(XXX)XXX-7701
```

Element number 15 17 18 19 25 29

```
^^^^^XXX^XXX7701 ||||BOB4504A^BOB4504A||||||||||O||||
```

SEQ	Format	Option	Element / Field Name
0		R	Segment ID = "ORC"
1	ST	R	Order control
2	CM	R	Placer order number
3	CM	O	Filler order number
4	CM	O	Placer group number
5	ST	O	Order status
6	ST	O	Response flag
7	CM	O/R	Timing / Quantity
8	CM	O	Parent
9	TS	R	Transaction date/time
10	CN	O	Entered by
11	CN	O	Verified by
12	CN	O	Ordering provider
13	CM	O	Location for enterer
14	TN	O	Call back phone number
15	TS	O	Order effective date/ time
16	CE	O	Order control reason
17	CE	O	Entering organization
18	CE	O	Entering device

ORR — Order (ORM) Acknowledgement

SEQ	Format	Option	Element / Field Name
0		R	Segment ID = "ORC"
1	ST	R	Order control
2	CM	R	Placer order number
3	CM	O	Filler order number
4	CM	O	Placer group number
5	ST	O	Order status
6	ST	O	Response flag
7	CM	O/R	Timing / Quantity
8	CM	O	Parent

OBR — Observation Reports

The HL7 OBR segment transmits information about an exam, diagnostic study/observation, or assessment that is specific to an order or result. It is used most frequently in ORM (Order) and ORU (Observation Result) messages, and has an important role in carrying the placer and filler order numbers.

OBR — Observation Reports

Element number 1 2 3 4 5 6

```
OBR|1|36775000^EPC||AUD00001^AUDIOGRAM^AUDSFT^^AUDIOGRAM||20140429
```

Element number 11 16

```
|20140429083443|20140429083443|||Y|||||1733^AMOUSE^MICKEY|
```

Element number 17 20 24

```
(XXX)999-4059^^^^^XXX^9994059|||||20140429083443||Audiology|F|
```

Element number 27 30 40 43

```
|^^^20140429^^R|||||||||||||||||
```

SEQ	Format	Option	Element / Field Name
1	SI	R	Set ID - OBR
2	EI	R	Placer Order Number
3	EI	R	Filler Order Number
4	CE	R	Universal Service Identifier
5	ID	O	Priority
6	TS	R	Requested Date/Time
7	TS	R	Observation Date/Time
8	TS	R	Observation End Date/Time
9	CQ	R	Collection Volume
10	XCN	O	Collector Identifier
11	ID	O	Specimen Action Code
12	CE	O	Danger Code
13	ST	O	Relevant Clinical Info.
14	TS	O	Specimen Received Date/Time
15	CM	O	Specimen Source
16	XCN	O	Ordering Provider
17	XTN	O	Order Callback Phone Number
18	ST	O	Placer Field 1
19	ST	O	Placer Field 2
20	ST	O	Filler Field 1
21	ST	O	Filler Field 2
22	TS	O	Results Report/Status Change - Date/Time
23	CM	O	Charge To Practice
24	ID	O	Diagnostic Serv Sect ID
25	ID	O	Result Status
26	CM	O	Parent Result
27	TQ	O	Quantity/Timing
28	XCN	O	Result Copies To
29	CM	O	Parent Number
31	CE	O	Reason For Study
32	CM	O	Principal Result Interpreter
33	CM	O	Assistant Result Interpreter
34	CM	O	Technician
35	CM	O	Transcriptionist
36	TS	O	Scheduled Date/Time
38	CE	O	Number Of Sample Containers
39	CE	O	Transport Logistics Of Collected Samples

OBX — Observation Result

The OBX segment is primarily used to carry key clinical observation/results reporting information within report messages, which must be transmitted back to the requesting system, to another physician system or to an archival medical record system. AudBase will result the audiogram within the OBX segment 5 and generally will identify the Audiogram result as encapsulated data (ED). AudBase can generate ORM messages and return the message to the EMR with the report or clinical information in the OBX-5 segment. In this case the ORM is used by the receiving system (HIS) to process the observation.

OBX — Observation Result

Element number 1 2 3 4 5

```
OBX|1|ED|AUDDOC^^AUDSFTLRR|| AUDBASE^application^pdf^Base64
```

Element number —— (5 continued) ——

```
^JVBERi0xLjIKekdf1fnfSqQYt7AjczYfpmRSIEyEcx8KMSAwIG9iago8PAovVHlwZS
```

Element number —— (5 continued) ——

```
AvQ2F0YWxvZwovUGFnZXMgMiAwIFIKL1BhZ2VMYXlvdXQgL09uZUNvbHVtbgovVmlld
```

Element number —— (5 continued) ——

```
2VyUHJlZmVyZW5jZXMgPDwKL0hpZGVUb29s.....(Base 64 code continued).
```

SEQ	Format	Option	Element / Field Name
0		R	Segment ID = "OBX"
1	SI	O	Set ID - OBX
2*	ID	R	Value Type (ED, RP, TX or FT)
3	CE	R	Observation Identifier
4	ST	O	Observation Sub-ID
5	NM	R	Observation Value (Embedded AudBase Report Image or Link)
6	CE	R	Units
7	ST	O	References Range
8	ID	O	Abnormal Flags
9	NM	O	Probability
10	ID	O	Nature of Abnormal Test
11	ID	O	Result Status
12	TS	O	Date of Last Normal Values
13	ST	O	User Defined Access Checks
14	TS	O	Date/Time of the Observation
15	CE	O	Producer's ID
16	CN	O	Responsible Observer
17	CE	O	Observation Method

Observation Result (SEQ 2*)

Value Type	Description
ED	Encapsulated Data
FT	Formatted Text
TX	Text Data
RP	Reference Pointer or UNC Name

DG1 — Diagnosis

In this case the DG1 segment is used to instruct the test/s needed for a patient diagnosis. All diagnosis will be transmitted individually. If there is a new diagnosis, or a change in any of the diagnoses, they should all be retransmitted to the interface. AudBase will employ elements such as DG code, description, date/time etc...

DG1 — Diagnosis

Element number *1* *2* *3*

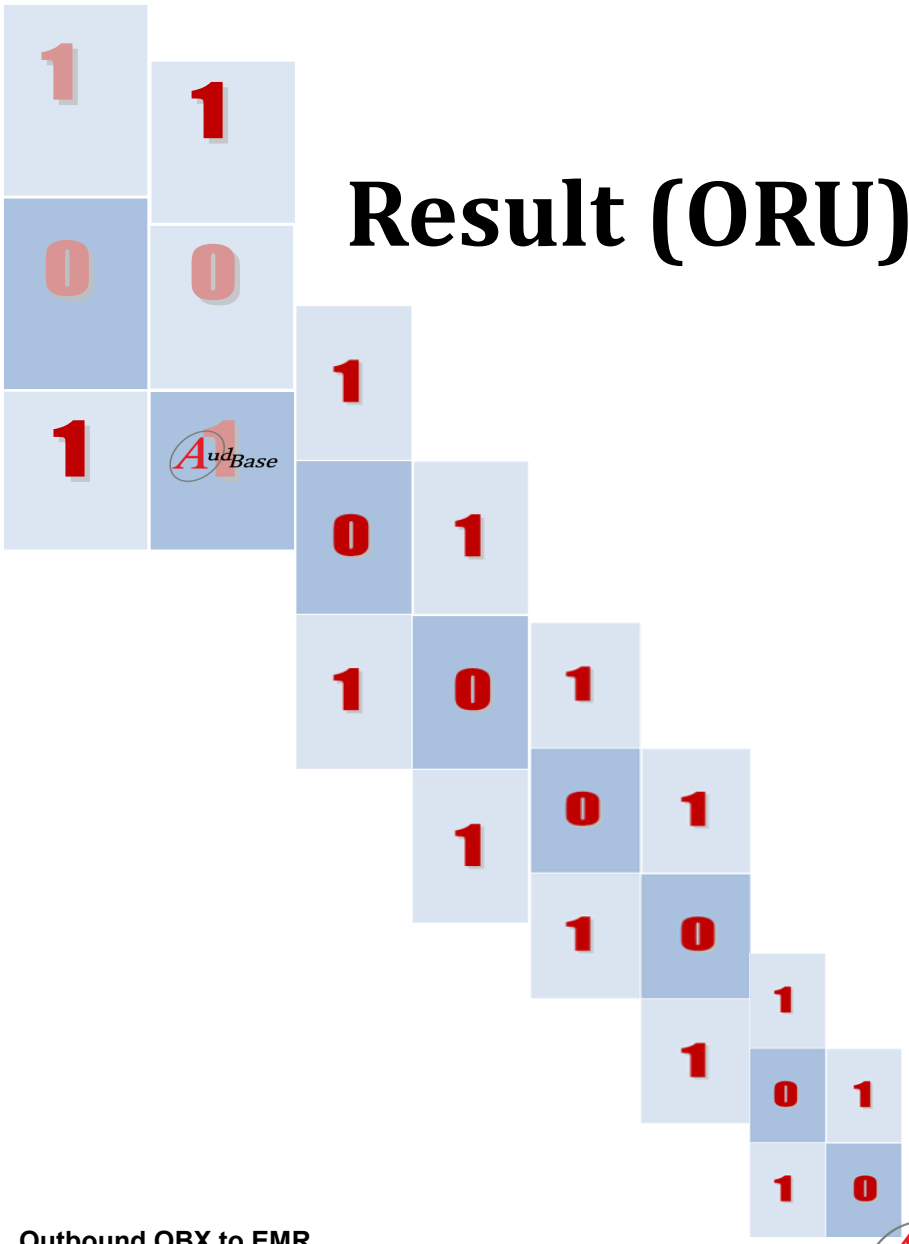
```
DG1|1|DX|XXX.15^audiogram comprehensive, unilateral^DX|
```

Element number *4* *5* *6* *7* *10* *14*

```
audiogram comprehensive, unilateral||||||||||||
```

SEQ	Format	Option	Element / Field Name
0		R	Segment ID = "DG1"
1	SI	O	Set ID - Diagnosis
2	ID	R	Diagnosis coding method
3	ID	R	Diagnosis code
4	ST	R	Diagnosis description
5	TS	R	Diagnosis date/time
6	ID	O	Diagnosis/DRG type
7	ST	O	Major diagnostic category
8	ID	O	Diagnosis related group (DRG)
9	ID	O	DRG approval indicator
10	ID	O	DRG grouper review code
11	ID	O	Outlier type
12	NM	O	Outlier days
13	NM	O	Outlier cost
14	ST	O	Grouper version and type

```
OBR|1|20060307110114||003038^Urinalysis^L|||20060307110114
```



Result (ORU)

Outbound OBX to EMR

(---- 2012-04-26 14:56:27 ----)
Outbound Message:
MSH|^~\&|AUDBASE|XXHC AUDBASE|EMR|EMR|20120426145626||ORU^R01|15270604|P|2.3|
PID||30535632^^^^EPI|||COYOTE|^WILEY||20100517|M|||||||||511917049|
OBR|1||AUD11|100912^AUDIOGRAM^EAP|||20120426144322|20120426144322|||||20120426144322
|||||||20120426145615|||F|
OBX|1|RP|123^Report||\E\\E\xxxapp167\E\AudBase Data-
base\E\Secondary_Export\E\511917049_20120426144322.pdf^^^80||||||F|||20120426144322|

HL7 ORU – HL7 Result Message (Observation Result)

The ORU message is a structured report where each observation is separated into an individual entity, and then separated into fields. See below for types of observations included in a resulting message. Since the placer application (EMR) already holds all patient visit info (PV1), AudBase does not need to include the Patient Visit segment in the resulting message. For that reason PV1 is optional in the ORU.

SEGMENT/ GROUP	NAME	OPTIONAL
MSH	**Message header**	**Required**
Results Group		
Patient Group – Optional group		
PID	**Patient identification**	**Required**
PID1	**Patient demographics– additional info**	**Optional**
NTE	**Notes and comments**	**Optional**
Patient Visit Group – part of Patient Group		
PV1	**Patient visit**	**Optional**
PV2	**Patient visit – additional info**	**Optional**
Order Group		
ORC	**Common order**	**Required**
OBR	**Observation request**	**Required**
NTE-1	**Notes and comments**	**Optional CF**
Observation Group — part of Order Group		
OBX	**Observation**	**Required**
NTE-2	**Notes and comments**	**Optional CF**
Order Group continued		
CTI	**Clinical trial identification**	**Optional CF**

(R) Mandatory Segments /Groups included by AudBase in the result message. (N/A) Will not be employed by AudBase.

Optional — Optional fields that may be included if noted in the message design form at no additional charge.
Optional CF— Optional fields that may be requested to be included in message, which may require an additional customization fee.

Types of observations reported in the ORU-R01 message include:

- **Clinical Results**
- **Image(s) of report embedded or a link to the image share. (Located in OBX segment)**
- **Audiogram / Tympanogram study results**
- **Link (UNC Path) to clinical trials, or for medical reporting purposes for specialized devices.**
- **The HL7 ORU-R01 message transmits observations and results from the producing system i.e. Audiometer / Tympanometer to the ordering system (EMR / EHR).**

MSH—Message Header

Element number 1 2 3 4 5 6 7 8 9 10 11 12

```
MSH|^~\&|AUDBASE|AUDBASE||EMR|20120426145626||ORU^R01|15270604|P|2.3|
```

PID — Patient Identification

Element number 1 2 3 4 5 6 7 8 9

```
PID|1||H1849022||SIMPLE^IVAN^SIMONO|PENA|20110207|M|SIMPLE^IVAN^A|
```

Element number 10 11

```
Am Indian|307 ORANGE AVE APT 76^^BROWN VISTA^CO^ 91911-
```

Element number 12 13

```
4170^USA^^^SAN DIEGO|SAN DIEGO|(XXX)XXX-3620 ^^^^^ XXX^7303620
```

Element number 14 15 16 17 18 19 20 21 22

```
|||Single||81637118|999-99-0000||SIMPLE^DULCE||
```

PV1 — Patient Visit

Element number 1 2 3 4 5 6 7 8

```
PV1||OUTPATIENT|H AUDM^^^10 |||||1733^AMOUSE^MICKEY
```

Element number 9 18 19 20 25 30 35 40 44 49

```
||||||||||||81637118|||||||||||||||||||||||||201404290817||||||
```

ORC — Order Common

Element number 1 2 3 4 5 6 7 8 9

```
ORC|NW|36000000^EPC||81999999|||^^^20140429^^R||201404290856|
```

Element number 10 11 12

```
MICKE^GREAT^MOOSE^CANDYMANIA||13085^SALSALO^PAMELA|
```

Element number 13 14

```
100101037^^^100101^^^^^AUDIOLOGY MAIN|(XXX)XXX-7701
```

Element number 15 17 18 19 25 29

```
^^^^^XXX^XXX7701 ||||BOB4504A^BOB4504A||||||||||O||||
```

OBR — Observation Reports

Element number 1 2 3 4 5 6

```
OBR|1|36000000^EPC||AUD00001^AUDIOGRAM^AUDSFT^^AUDIOGRAM||20140429
```

Element number 11 16

```
|20140429083443|20140429083443|||Y|||||1733^AMOUSE^MICKEY|
```

Element number 17 20 24

```
(XXX)999-4059^^^^^XXX^9994059|||||20140429083443||Audiology|F|
```

Element number 27 30 40 43

```
|^^^20140429^^R|||||||||||||||||
```

OBX — Observation

Element number 1 2 3 4 5

```
OBX|1|RP|123^Report|||\E\\E\xxxapp167\E\AudBase Database\E\Secondary
```

Element number 5 Continued 6 11 14

```
_Export\E\511917049_20120426144322.pdf^^^80||||||F|||20120426144322
```

Message Header

The HL7 MSH (Message Header) segment is present in every HL7 message type and defines the message's source, purpose, destination and character sets. It is always the first segment in a single HL7 message. AudBase will make use of header information such as Event Type, Date and Time, location origin of message, sending application (HIS) and Message Control ID.

Message Header

Element number *1 2 3 4 5 6 7 8 9 10 11 12 14 17*

MSH|^~\&||EPIC||AUDBASE|20140429085630|MMOUSE|**ORM^O01**|3806|P|||||||

SEQ	Format	Option	Element / Field Name
1	ST	R	Field Separator
2	ST	R	Encoding Characters
3	HD	R	Sending Application
4	HD	R	Sending Facility
5	HD	O	Receiving Application
6	HD	O	Receiving Facility
7	TS	R	Date/Time of Message
8	ST	O	Security
9	CM_MSG	R	Message Type
10	ST	R	Message Control Id
11	PT	R	Processing Id
12	ID	R	Version Id
13	NM	O	Sequence Number
14	ST	O	Continuation Pointer
15	ID	O	Accept Acknowledgement Type
16	ID	O	Application Acknowledgement Type
17	ID	O	Country Code
18	ID	O	Character Set
19	CE	O	Principal Language of Message

PID — Patient Identification Segment

The PID segment is found in every ORM message and contains 30 different fields with values ranging from patient ID number, to address, to marital status. The PID segment provides important identification information about the patient and is used as the primary means of communicating the identifying and demographic information about a patient between systems. AudBase will make use of the pertinent demographics within the PID Segment.

PID — Patient Identification Segment

Element number 1 2 3 4 5 6 7 8 9 10

PID|1||10006579^^^1^MRN^1||DUCK^DONALD^D||19241010|M||1|111 DUCK

Element number 11 12 13 14 15 18

ST^^FOWL^CA^999990000^^M|1|8885551212|8885551212|1|2||40007716^^^AudBase^VN^1

Element number 19 21 25 30

|123121234|||||||||||NO

SEQ	Format	Option	Element / Field Name
0		R	Segment ID = "PID"
1	SI	O	Set ID - Patient ID
2	CX	O	Patient ID (External ID)
3	CX	R	Patient ID (Internal ID)
4	CX	O	Alternate Patient ID - PID
5	PN	R	Patient Name
6	PN	O	Mother's Maiden Name
7	TS	R	Date/Time of Birth
8	IS	R	Sex
9	PN	O	Patient Alias
10	IS	R	Race
11	AD	O	Patient Address
12	IS	O	County Code
13	TN	O	Phone Number - Home
14	TN	O	Phone Number - Business
15	CE	O	Primary Language
16	IS	O	Marital Status
17	IS	O	Religion
18	CX	R	Patient Account Number
19	ST	O	SSN Number - Patient
20	ST	O	Driver's License Number - Patient
21	CX	O	Mother's Identifier
22	IS	O	Ethnic Group
23	ST	O	Birth Place
24	ID	O	Multiple Birth Indicator
25	NM	O	Birth Order
26	IS	O	Citizenship
27	CE	O	Veterans Military Status
28	CE	O	Nationality
29	TS	O	Patient Death Date and Time
30	ID	O	Patient Death Indicator

PV1 — Patient Visit

The PV1 Patient Visit segment contains information about the encounter (a.k.a. Visit). This segment includes, amongst other things, the type of encounter, its start/end date and time, the admitting and attending physicians. AudBase will use data from this message to populate fields within the provider table of the AudBase database.

PV1 — Patient Visit

Element number 1 2 3 4 5 6 7

```
PV1|1|I|Audiology^101^1^1^^^S|3|||37^DISNEY^WALT^^^^^^AudBase^^
```

Element number 8 9 10 14 17 18 19

```
^^CI|||01||||1|||37^DISNEY^WALT^^^^^^AudBase^^^^CI|2|40007716^^
```

Element number 20 25 30 35 39 40 43 44 45 49

```
^AudBase^VN|4|||||||||||||||||||1||G|||20050110045253||||||
```

SEQ	Format	Option	Element / Field Name
0		R	Segment ID = "PV1"
1	SI	O	Set ID - PV1
2	IS	R	Patient Class
3	PL	R	Assigned Patient Location
4	IS	O	Admission Type
5	CX	O	Pre-admit Number
6	PL	O	Prior Patient Location
7	CN	R	Attending Doctor
8	CN	R	Referring Doctor
9	CN	O	Consulting Doctor
10	IS	O	Hospital Service
11	PL	O	Temporary Location
12	IS	O	Pre-admit test Indicator
13	IS	O	Readmission Indicator
14	IS	O	Admit Source
15	IS	O	Ambulatory Status
16	IS	O	VIP Indicator
17	CN	O	Admitting Doctor
18	IS	O	Patient Type
19	CX	O	Visit Number
20	FC	O	Financial Class
21	IS	O	Charge Price Indicator
22	IS	O	Courtesy Code
36	IS	O	Discharge Disposition
37	CM	O	Discharged to Location
38	IS	O	Diet Type
42	PL	O	Pending Location
43	PL	O	Prior Temporary Location
44	TS	O	Admit Date/Time
45	TS	O	Discharge Date/Time
46	NM	O	Current Patient Balance
47	NM	O	Total Charges
48	NM	O	Total Adjustments
49	NM	O	Total Payments
50	CX	O	Alternate Visit ID
51	IS	O	Visit Indicator
52	CN	O	Other Healthcare Provider

SEQ #s 23-35 are related to financial transactions and are not included in this *list of elements* as options. If financial information is required please reflect in order form

ORC — Order Common

The Common Order segment (ORC) is used to transmit fields that are common to all orders (all types of services that are requested). The ORC segment is required in the Order (ORM) message. ORC is mandatory in Order Acknowledgment (ORR) messages if an order detail segment is present, but is not required otherwise.

ORC — Order Common

Element number 1 2 3 4 5 6 7 8 9

```
ORC|NW|36146391^EPC||81999999|||^^^20140429^^R||201404290856|
```

Element number 10 11 12

```
MICKE^GREAT^MONEY^CANDYMANIA||13085^SALSALO^PAMELA|
```

Element number 13 14

```
100101037^^^100101^^^^^AUDIOLOGY MAIN|(XXX)XXX-7701
```

Element number 15 17 18 19 25 29

```
^^^^^XXX^XXX7701 ||||BOB4504A^BOB4504A||||||||||O||||
```

SEQ	Format	Option	Element / Field Name
0		R	Segment ID = "ORC"
1	ST	R	Order control
2	CM	R	Placer order number
3	CM	O	Filler order number
4	CM	O	Placer group number
5	ST	O	Order status
6	ST	O	Response flag
7	CM	O/R	Timing / Quantity
8	CM	O	Parent
9	TS	R	Transaction date/time
10	CN	O	Entered by
11	CN	O	Verified by
12	CN	O	Ordering provider
13	CM	O	Location for enterer
14	TN	O	Call back phone number
15	TS	O	Order effective date/ time
16	CE	O	Order control reason
17	CE	O	Entering organization
18	CE	O	Entering device

ORR — Order (ORM) Acknowledgement

SEQ	Format	Option	Element / Field Name
0		R	Segment ID = "ORC"
1	ST	R	Order control
2	CM	R	Placer order number
3	CM	O	Filler order number
4	CM	O	Placer group number
5	ST	O	Order status
6	ST	O	Response flag
7	CM	O/R	Timing / Quantity
8	CM	O	Parent

OBR — Observation Reports

The HL7 OBR segment transmits information about an exam, diagnostic study/observation, or assessment that is specific to an order or result. It is used most frequently in ORM (Order) and ORU (Observation Result) messages, and has an important role in carrying the placer and filler order numbers.

OBR — Observation Reports

Element number 1 2 3 4 5 6

```
OBR|1|36775000^EPC||AUD00001^AUDIOGRAM^AUDSFT^^AUDIOGRAM||20140429
```

Element number 11 16

```
|20140429083443|20140429083443|||Y|||||1733^AMOUSE^MICKEY|
```

Element number 17 20 24

```
(XXX)999-4059^^^^^XXX^9994059|||||20140429083443||Audiology|F|
```

Element number 27 30 40 43

```
|^^^20140429^^R|||||||||||||||||
```

SEQ	Format	Option	Element / Field Name
1	SI	R	Set ID - OBR
2	EI	R	Placer Order Number
3	EI	R	Filler Order Number
4	CE	R	Universal Service Identifier
5	ID	O	Priority
6	TS	R	Requested Date/Time
7	TS	R	Observation Date/Time
8	TS	R	Observation End Date/Time
9	CQ	R	Collection Volume
10	XCN	O	Collector Identifier
11	ID	O	Specimen Action Code
12	CE	O	Danger Code
13	ST	O	Relevant Clinical Info.
14	TS	O	Specimen Received Date/Time
15	CM	O	Specimen Source
16	XCN	O	Ordering Provider
17	XTN	O	Order Callback Phone Number
18	ST	O	Placer Field 1
19	ST	O	Placer Field 2
20	ST	O	Filler Field 1
21	ST	O	Filler Field 2
22	TS	O	Results Report/Status Change - Date/Time
23	CM	O	Charge To Practice
24	ID	O	Diagnostic Serv Sect ID
25	ID	O	Result Status
26	CM	O	Parent Result
27	TQ	O	Quantity/Timing
28	XCN	O	Result Copies To
29	CM	O	Parent Number
31	CE	O	Reason For Study
32	CM	O	Principal Result Interpreter
33	CM	O	Assistant Result Interpreter
34	CM	O	Technician
35	CM	O	Transcriptionist
36	TS	O	Scheduled Date/Time
38	CE	O	Number Of Sample Containers
39	CE	O	Transport Logistics Of Collected Samples

OBX — Observation Result

The OBX segment is primarily used to carry key clinical observation/results reporting information within report messages, which must be transmitted back to the requesting system, to another physician system or to an archival medical record system. AudBase will result the audiogram within the OBX segment 5.and generally AudBase will identify the Audiogram result as encapsulated data (ED). AudBase can generate ORM messages and return the message to the EMR with the report or clinical information in the OBX-5 segment. In this case the ORM is used by the receiving system (HIS) to process the observation.

OBX — Observation Result

Element number 1 2 3 4 5

```
OBX|1|ED|AUDDOC^^AUDSFTLRR|| AUDBASE^application^pdf^Base64
```

Element number —— (5 continued) ——

```
^JVBERi0xLjIKekdf1fnfSqQYt7AjczYfpmRSIEyEcx8KMSAwIG9iago8PAovVHlwZS
```

Element number —— (5 continued) ——

```
AvQ2F0YWxvZwovUGFnZXMgMiAwIFIKL1BhZ2VMYXlvdXQgL09uZUNvbHVtbgovVmlld
```

Element number —— (5 continued) ——

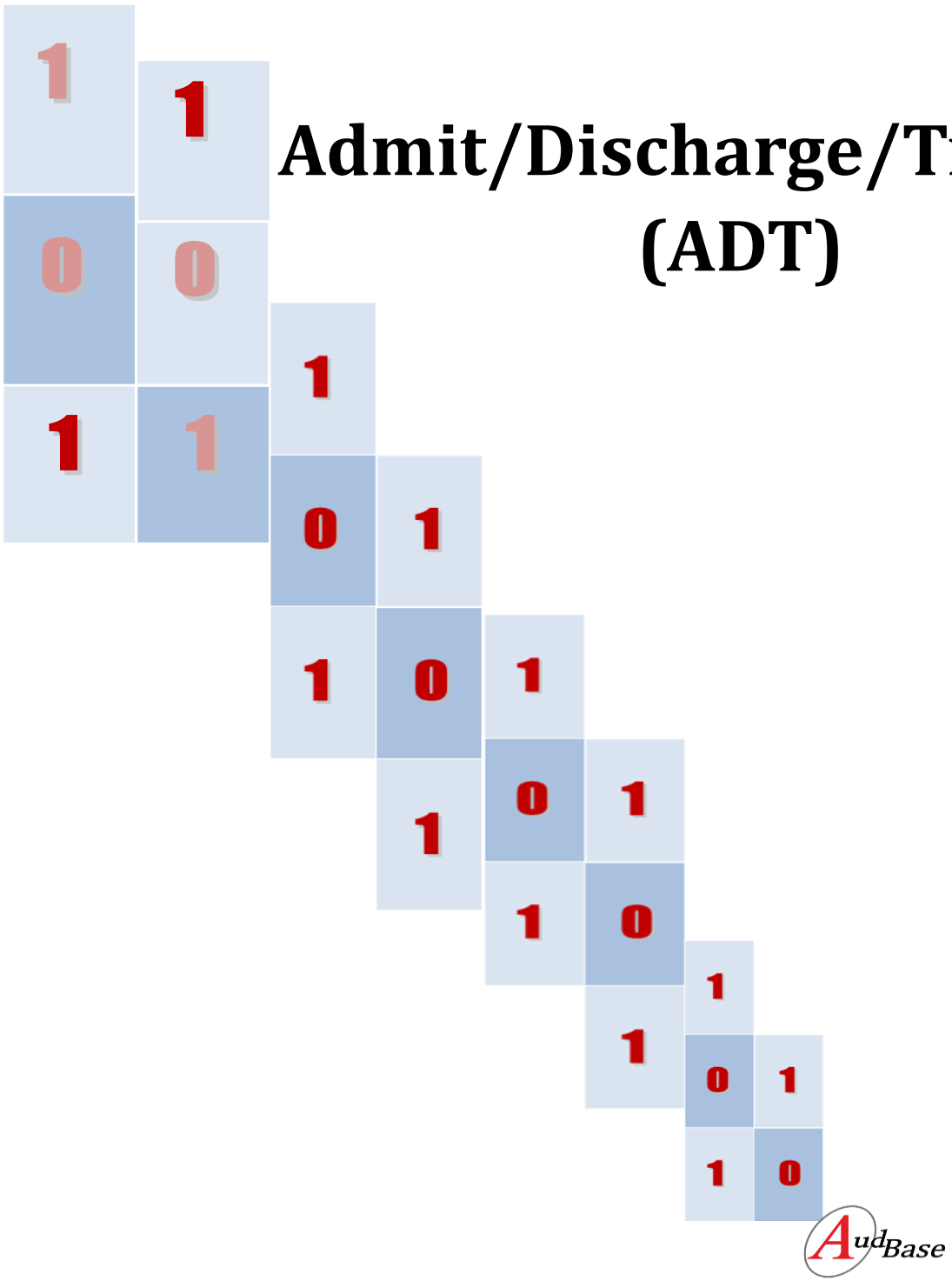
```
2VyUHJlZmVyZW5jZXMgPDwKL0hpZGVUb29s.……(Base 64 code continued).
```

SEQ	Format	Option	Element / Field Name
0		R	Segment ID = "OBX"
1	SI	O	Set ID - OBX
2	ID	R	Value Type (ED, RP, TX or FT)
3	CE	R	Observation Identifier
4	ST	O	Observation Sub-ID
5	NM	R	Observation Value (Embedded AudBase Report Image or Link)
6	CE	R	Units
7	ST	O	References Range
8	ID	O	Abnormal Flags
9	NM	O	Probability
10	ID	O	Nature of Abnormal Test
11	ID	O	Result Status
12	TS	O	Date of Last Normal Values
13	ST	O	User Defined Access Checks
14	TS	O	Date/Time of the Observation
15	CE	O	Producer's ID
16	CN	O	Responsible Observer
17	CE	O	Observation Method

Observation Result (SEQ #2)

Value Type	Description
ED	Encapsulated Data
FT	Formatted Text
TX	Text Data
RP	Reference Pointer or UNC Name

Admit/Discharge/Transfer (ADT)



ADT (ADMIT/ DISCHARGE /TRANSFER)

The ADT message type will be used to transmit admission/patient demographic information from the facilities host EMR system to the AudBase Server. Several (incoming) admission events are supported by the interface (refer to the HL7 acceptable events table). Many admission messages may share the same message format. When a subsequent message shares the same segment combinations as a previous one, AudBase will update the fields in the database to reflect the newer message. The "trigger event" or "event" code (e.g., A01 = admit, A04 = register) found in the Message Header Segment and in the Event Segment define the type of admission message (admission, transfer, discharge, etc.). These events will be detailed in the "HL7 acceptable events" detail list found in this documentation.

SEGMENT/ GROUP	NAME	OPTIONAL
MSH	Message header	Required
EVN	Event Type	Required
Patient Group – Optional group		
PID	Patient identification	Required
PID1	Patient demographics	Optional
NK1	Notes and comments	Optional CF
Patient Visit Group – part of Patient Group		
PV1	Patient visit	Recommended but not Required
PV2	Patient visit – additional info	Optional
Patient Group continued		
GT1	Guarantor	N/A
AL1	Patient allergy information	N/A
Order Group		
Observation Group — part of Order Group		
OBX	Observation	Required
Nk2	Notes and comments	Optional CF
Order Group continued		
CTI	Clinical trial identification	Optional CF
DG1	Diagnosis	Optional

(R) Mandatory Segments /Groups included by AudBase in the result message. (N/A) Will not be employed by AudBase.

Optional — Optional fields that may be included if noted in the message design form at no additional charge.
Optional CF— Optional fields that may be requested to be included in message, which may require an additional customization fee.

(ADT) ADMIT / DISCHARGE / TRANSFER

Message Header

Element number 1 2 3 4 5 6 7 8 9 10 11 12

```
MSH|^~\&|AudBase|1|EMR||20050110045504||ADT^A01|599102|P|2.3|||
```

Event

Element number 1 2 3 4 5 6 7

```
EVN|A01|20050110045502|||||
```

PID — Patient Identification

Element number 1 2 3 4 5 6 7 8 9

```
PID|1||H1686001||^CRISTIANA^AMMAR|HERMIS^SAVLEEN|20110604|F|YAKYAKA
```

Element number 10 11

```
^CRISTIANA|Other|1127 EEEEEED AVE^^EL CAAON^CA^92020-7362
```

Element number 12 13

```
^USA^^^SAN DIEGO|SAN DIEGO|(XXX)XXX-9287 ^^^^^XXX^XXX-9287
```

Element number 14 15 16 17 18 19 20 21

```
|||Single||81637928|999-99-9999||HERMIS^SAVLEEN||
```

PV1 — Patient Visit

Element number 1 2 3 4 5 6 7 8

```
PV1||OUTPATIENT|AUDIOLOGY MAIN^^^10|||||1011
```

Element number 8 9 18 19 20 25 30 35 40 43

```
^YOSIMITES^SAMS||||||||||81637928|||||||||||||||||||||||||
```

Element number 44 45 49

```
201404290856||||||
```

ORC — Order Common

Element number 1 2 3 4 5 6 7 8 9

```
ORC|NW|36000000^EPC||81999999|||^^^20140429^^R||201404290856|
```

Element number 10 11 12

```
MICKE^GREAT^MOOSE^CANDYMANIA||13085^SALSALO^PAMELA|
```

Element number 13 14

```
100101037^^^100101^^^^^AUDIOLOGY MAIN|(XXX)XXX-7701
```

Element number 15 17 18 19 25 29

```
^^^^^XXX^XXX7701 ||||BOB4504A^BOB4504A||||||||||O||||
```

OBR — Observation Request

Element number 1 2 3 4

```
OBR|1|36000000^EPC||AUD00027^STANDARD HEARING TEST^AUDSFT^^ST
```

Element number 5 6 11 16 17

```
HEAR TEST||20140429|||||N|||||13085^SALSALO^PAMELA|(XXX)XXX-7701
```

Element number 20 24 27 30 40

```
^^^^^XXX^XXX7701|||||||Audiology|||^^^20140429^^R|||||||||||||
```

DG1 — Diagnosis

Element number 1 2 3

```
DG1|1|DX|389.15^Sensorineural hearing loss, unilateral^DX|
```

Element number 4 5

```
Sensorineural hearing loss, unilateral||
```

MSH — Message Header

The HL7 MSH (Message Header) segment is present in every HL7 message type and defines the message's source, purpose, destination, and character sets. It is always the first segment in a single HL7 message. AudBase will make use of header information such as Event Type, Date and Time, location origin of message, sending application (HIS) and Message Control ID.

Message Header

Element number 1 2 3 4 5 6 7 8 9 10 11 12 13 15

```
MSH|^~\&|Host EMR|1|||20050110045504||ADT^A01|599102|P|2.3|||EVN
```

Element number 16 17 18 21

```
|A01|20050110045502|||||
```

SEQ	Format	Option	Element / Field Name
1	ST	R	Field Separator
2	ST	R	Encoding Characters
3	HD	R	Sending Application
4	HD	R	Sending Facility
5	HD	R	Receiving Application
6	HD	O	Receiving Facility
7	TS	R	Date/Time of Message
8	ST	O	Security
9	CM_MSG	R	Message Type
10	ST	R	Message Control Id
11	PT	R	Processing Id
12	ID	R	Version Id
13	NM	O	Sequence Number
14	ST	O	Continuation Pointer
15	ID	O	Accept Acknowledgement Type
16	ID	O	Application Acknowledgement Type
17	ID	O	Country Code
18	ID	O	Character Set
19	CE	O	Principal Language of Message

EVN — Event Message

A trigger event is the underlying reason for transmitting a message. Any change or update in the patient status, such as patient admission or demographics update will cause a trigger event. Even though the standard itself doesn't explicitly define a sequence in which these trigger events occur, it seems clear that normally a patient has to be admitted (A01) before transferred (A02) and discharged (A03). As soon as the appropriate trigger happens a message is sent to AudBase. Several (incoming) admission events are supported by the AudBase interface. Event details are contained within the Event segment of the ADT.

ADT trigger events that AudBase will process:

EVENT	TRIGGER	TRIGGER DESCRIPTION
A01	**Admit notification**	an inpatient encounter has started. The patient has been admitted and has been assigned to a location (room or bed)
A02	**Transfer notification**	a patient has been transferred from one location to another one.
A04	**Patient registration notification**	an outpatient encounter has started
A05	**Pre-admit a patient notification**	the pre-admission process of a patient has started; registration of a non-admitted patient
A08	**Update patient information notification**	unspecified details of the encounter or the patient demographics data have changed. This trigger event represents a "other changes" category if a more suitable Axx trigger event doesn't exist
A28	**Addition to person demographics / information**	Addition of information to the patient demographics , which will appear in the PID segment in the message.
A31	**Update of person demographics / information**	Update / change of information to the PID segment in the message which is reflected in the patient demographics

Event

Element number 1 2 3 4 5 6 7

```
EVN|A01|20050110045502|||||
```

SEQ	Format	Option	Element / Field Name
0		**R**	**Segment ID = "EVN"**
1	**ID**	**R**	**Event Type Code**
2	**TS**	**R**	**Recorded Date/Time**
3	**TS**	**O**	**Date/Time Planned Event**
4	**IS**	**O**	**Event Reason Code**
5	**CN**	**O**	**Operator ID**
6	**TS**	**O**	**Event Occurred**

PID — Patient Identification Segment

The PID segment is found in every ORM message and contains 30 different fields with values ranging from patient ID number, to address, to marital status. The PID segment provides important identification information about the patient and is used as the primary means of communicating the identifying and demographic information about a patient between systems. AudBase will make use of the pertinent demographics within the PID Segment

PID — Patient Identification Segment

Element number *1 2 3 4 5 6 7 8 9 10*

PID|1||10006579^^^1^MRN^1||DUCK^DONALD^D||19241010|M||1|111 DUCK

Element number *11 12 13 14 15 18*

ST^^FOWL^CA^999990000^^M|1|8885551212|8885551212|1|2||40007716^^^AudBase^VN^1

Element number *19 21 25 30*

|123121234|||||||||||NO

SEQ	Format	Option	Element / Field Name
0		R	Segment ID = "PID"
1	SI	O	Set ID - Patient ID
2	CX	O	Patient ID (External ID)
3	CX	R	Patient ID (Internal ID)
4	CX	O	Alternate Patient ID - PID
5	PN	R	Patient Name
6	PN	O	Mother's Maiden Name
7	TS	R	Date/Time of Birth
8	IS	R	Sex
9	PN	O	Patient Alias
10	IS	R	Race
11	AD	O	Patient Address
12	IS	O	County Code
13	TN	O	Phone Number - Home
14	TN	O	Phone Number - Business
15	CE	O	Primary Language
16	IS	O	Marital Status
17	IS	O	Religion
18	CX	R	Patient Account Number
19	ST	O	SSN Number - Patient
20	ST	O	Driver's License Number - Patient
21	CX	O	Mother's Identifier
22	IS	O	Ethnic Group
23	ST	O	Birth Place
24	ID	O	Multiple Birth Indicator
25	NM	O	Birth Order
26	IS	O	Citizenship
27	CE	O	Veterans Military Status
28	CE	O	Nationality
29	TS	O	Patient Death Date and Time
30	ID	O	Patient Death Indicator

PV1 — Patient Visit

The PV1 Patient Visit segment contains information about the encounter (a.k.a. Visit). This segment includes, amongst other things, the type of encounter, its start/end date and time, the admitting and attending physicians. AudBase will use data from this message to populate fields within the provider table of the AudBase database.

PV1 — Patient Visit

Element number 1 2 3 4 5 6 7

```
PV1|1|I|Audiology^101^1^1^^^S|3|||37^DISNEY^WALT^^^^^^AudBase^^
```

Element number 8 9 10 14 17 18 19

```
^^CI|||01||||1|||37^DISNEY^WALT^^^^^^AudBase^^^^CI|2|40007716^^
```

Element number 20 25 30 35 39 40 43 44 45 49

```
^AudBase^VN|4|||||||||||||||||||1||G|||20050110045253||||||
```

SEQ	Format	Option	Element / Field Name
0		R	Segment ID = "PV1"
1	SI	O	Set ID - PV1
2	IS	R	Patient Class
3	PL	R	Assigned Patient Location
4	IS	O	Admission Type
5	CX	O	Pre-admit Number
6	PL	O	Prior Patient Location
7	CN	R	Attending Doctor
8	CN	R	Referring Doctor
9	CN	O	Consulting Doctor
10	IS	O	Hospital Service
11	PL	O	Temporary Location
12	IS	O	Pre-admit test Indicator
13	IS	O	Readmission Indicator
14	IS	O	Admit Source
15	IS	O	Ambulatory Status
16	IS	O	VIP Indicator
17	CN	O	Admitting Doctor
18	IS	O	Patient Type
19	CX	O	Visit Number
20	FC	O	Financial Class
21	IS	O	Charge Price Indicator
22	IS	O	Courtesy Code
36	IS	O	Discharge Disposition
37	CM	O	Discharged to Location
38	IS	O	Diet Type
42	PL	O	Pending Location
43	PL	O	Prior Temporary Location
44	TS	O	Admit Date/Time
45	TS	O	Discharge Date/Time
46	NM	O	Current Patient Balance
47	NM	O	Total Charges
48	NM	O	Total Adjustments
49	NM	O	Total Payments
50	CX	O	Alternate Visit ID
51	IS	O	Visit Indicator
52	CN	O	Other Healthcare Provider

SEQ #s 23-35 are related to financial transactions and are not included in this *list of elements* as options. If financial information is required please reflect in order form

OBX — Observation Result

The OBX segment is primarily used to carry key clinical observation/results reporting information within report messages, which must be transmitted back to the requesting system, to another physician system or to an archival medical record system. AudBase will result the audiogram within the OBX segment 5, and generally AudBase will identify the Audiogram result as encapsulated data (ED). AudBase can generate ORM messages and return the message to the EMR with the report or clinical information in the OBX-5 segment. In this case the ORM is used by the receiving system (HIS) to process the observation.

OBX — Observation Result

Element number 1 2 3 4 5

```
OBX|1|ED|AUDDOC^^AUDSFTLRR|| AUDBASE^application^pdf^Base64
```

Element number —— (5 continued) ——

```
^JVBERi0xLjIKekdf1fnfSqQYt7AjczYfpmRSIEyEcx8KMSAwIG9iago8PAovVHlwZS
```

Element number —— (5 continued) ——

```
AvQ2F0YWxvZwovUGFnZXMgMiAwIFIKL1BhZ2VMYXlvdXQgL09uZUNvbHVtbgovVmlld
```

Element number —— (5 continued) ——

```
2VyUHJlZmVyZW5jZXMgPDwKL0hpZGVUb29s.……(Base 64 code continued).
```

SEQ	Format	Option	Element / Field Name
0		R	Segment ID = "OBX"
1	SI	O	Set ID - OBX
2	ID	R	Value Type (ED, RP, TX or FT)
3	CE	R	Observation Identifier
4	ST	O	Observation Sub-ID
5	NM	R	Observation Value (Embedded AudBase Report Image or Link)
6	CE	R	Units
7	ST	O	References Range
8	ID	O	Abnormal Flags
9	NM	O	Probability
10	ID	O	Nature of Abnormal Test
11	ID	O	Result Status
12	TS	O	Date of Last Normal Values
13	ST	O	User Defined Access Checks
14	TS	O	Date/Time of the Observation
15	CE	O	Producer's ID
16	CN	O	Responsible Observer
17	CE	O	Observation Method

Observation Result (SEQ #2)

Value Type	Description
ED	Encapsulated Data
FT	Formatted Text
TX	Text Data
RP	Reference Pointer or UNC Name

DG1 — Diagnosis

In this case the DG1 segment is used to instruct the test/s, such as Audiogram, Tympanogram etc., needed for a patient diagnosis. All diagnosis will be transmitted individually. If there is a new diagnosis, or a change in any of the diagnoses, they should all be retransmitted to the interface. AudBase will employ elements such as DG code description, date/time etc.

DG1 — Diagnosis

Element number *1* *2* *3*

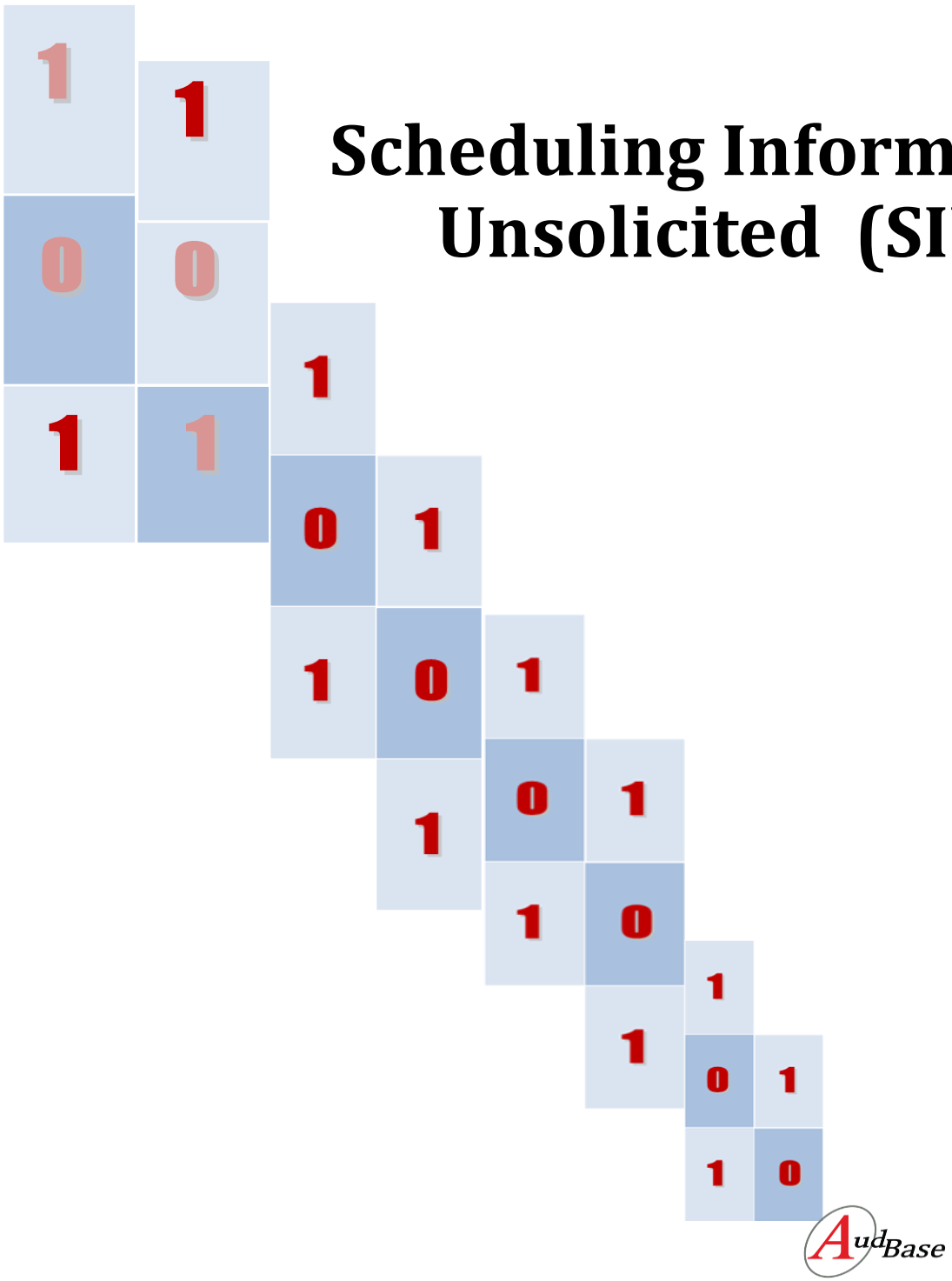
```
DG1|1|DX|XXX.15^audiogram comprehensive, unilateral^DX|
```

Element number *4* *5* *6* *7* *10* *14*

```
audiogram comprehensive, unilateral||||||||||||
```

SEQ	Format	Option	Element / Field Name
0		R	Segment ID = "DG1"
1	SI	O	Set ID - Diagnosis
2	ID	R	Diagnosis coding method
3	ID	R	Diagnosis code
4	ST	R	Diagnosis description
5	TS	R	Diagnosis date/time
6	ID	O	Diagnosis/DRG type
7	ST	O	Major diagnostic category
8	ID	O	Diagnosis related group (DRG)
9	ID	O	DRG approval indicator
10	ID	O	DRG grouper review code
11	ID	O	Outlier type
12	NM	O	Outlier days
13	NM	O	Outlier cost
14	ST	O	Grouper version and type

```
OBR|1|20060307110114||003038^Urinalysis^L|||20060307110114
```



Scheduling Information Unsolicited (SIU)

HL7 SIU Message – Scheduling Information Unsolicited

The HL7 SIU message notifies an auxiliary (or other similarly configured) application of changes to some facet of the filler application's appointment schedule. There are 14 different trigger events for the SIU message, but they all use a common message format.The segments and groups of segments in the SIU message are as follows, and apply for all trigger event

SIU Message

SEGMENT/ GROUP	NAME	OPTIONAL
MSH	Message header	Required
SCH	Schedule activity information	Required
NTE	Notes and comments	Optional NC
Patient Group – Optional and repeatable group		
PID	Patient identification	Required
PV1	Patient visit	Required
PV2	Patient visit – additional info	Unused
OBX	Observation	Optional
DG1	Diagnosis	Optional
Resource Group – Repeatable group		
RGS	Resource group	Required
Service Group – Optional and repeatable group, part of Resource Group		
AIS	Appointment information – service	Optional
NTE-1	Notes and comments	Optional
General Group – Optional and repeatable group, part of Resource Group		
AIG	Appointment information – General resource	Optional
NTE-2	Notes and comments	Unused
Location Group – Optional and repeatable group, part of Resource Group		
AIL	Appointment information – Location resource	Required
NTE-3	Notes and comments	Unused
Personnel Group – Optional and Repeatable, part of Resource Group		
AIP	Appointment information – Personnel resource	Required
NTE-4	Notes and comments	Unused

(SIU) Scheduling Information Unsolicited

Message Header

Element number 1 2 3 4 5 6 7 8 9 10 11 12

```
MSH|^~\&|GPMS|CTX||MED2000|2008030609||SIU^S14|200803069534|P|2.3|||
```

SCH — Scheduling

Element number 1 2 3 4 5 6 7 8

```
SCH|00331839401|||||58||HLCK^HEALTHCHECK ANY
```

Element number 9 10 11 12 13 15 16 17 18 19 20 22 25

```
AGE|20|MIN|^^^200803061000 |||||JOHN||||VALERIE|||||ARRIVED|
```

PID — Patient Identification

Element number 1 2 3 4 5 6 7 8 9 10 11

```
PID|1||489671|0|TIMON^MICERIO^||20080205|F|||176215TH
```

Element number 11 (cont.) 12 13 14 15 16 17 18 19 20 25 30

```
STREET^HOUSTON^TX^00006||(xxx)xxx-1259|||S|||999999999|||||||||||
```

PV1 — Patient Visit

Element number 1 2 3 4 5 6 7 8

```
PV1||OUTPATIENT|AUDIOLOGY MAIN^^^10||||HHR^HUYEBABIE MD|1011
```

Element number 8 (cont.) 9 18 19 20 25 30 35 40 43

```
^YOSIMITES^SAMS||||||||||81637928|||||||||||||||||||||||||
```

Element number 44 45 49

```
201404290856||||||
```

RGS — Resource Group Segment

Element number 1 2 3

```
RGS|1|||
```

AIL — Appointment Information Location

Element number 1 2 3 4 5 6 7 8 9 10 12

```
AIL|1||HHR^FPCS NGUYEN, MD|||||||||
```

AIP — Appointment Information Personnel

Element number 1 2 3 4 5 6 7 8 9 10 12

```
AIP|1||PBN^LISACENZPORTER|50|||||||||
```

HL7 TABLE - SIU TYPE CODE

The *HL7* SIU message notifies an auxiliary (or other similarly configured) application of changes to some facet of the filler application's appointment schedule. There are 14 different trigger events for the SIU message, but they all use a common message format.

VALUE	OPTION	DESCRIPTION
SIU-S12	Used	Notification of new appointment booking
SIU-S14	Used	Notification of appointment modification
SIU-S17	Optional	Notification of appointment deletion
SIU-S18	Optional	Notification of addition of service/resource on appointment

RGS--Resource Group Segment

The RGS segment is used to identify relationships between resources identified for a scheduled event. This segment can be used, on a site specified basis, to identify groups of resources that are used together within a scheduled event, or to describe some other relationship between resources. To specify related groups of resources within a message, begin each group with an RGS segment, and then follow that RGS with one or more of the Appointment Information segments (AIG, AIL, AIS, or AIP).

If a message does not require any grouping of resources, then specify a single RGS in the message, and follow it with all of the Appointment Information segments for the scheduled event. (At least one RGS segment is required in each message, even if no grouping of resources is required, to allow parsers to properly understand the message.)

RGS Attributes

SEQ	Format	Option	Element / Field Name
1	SI	R	Set ID (RGS)
2	ID	R	Segment Action Code
3	CE	O	Resource Group ID

Message Header

The HL7 MSH (Message Header) segment is present in every HL7 message type and defines the message's source, purpose, destination and character sets. It is always the first segment in a single HL7 message. AudBase will make use of header information such as Event Type, Date and Time, location origin of message, sending application (HIS) and Message Control ID.

Message Header

Element number *1 2 3 4 5 6 7 8 9 10 11 12 13*

```
MSH|^~\&|EMR1|HOS||ENTAUD|2008030609||SIU^S14|200803069534|P|2.3|||
```

SEQ	Format	Option	Element / Field Name
1	ST	R	Field Separator
2	ST	R	Encoding Characters
3	HD	R	Sending Application
4	HD	R	Sending Facility
5	HD	O	Receiving Application
6	HD	O	Receiving Facility
7	TS	R	Date/Time of Message
8	ST	O	Security
9	CM_MSG	R	Message Type
10	ST	R	Message Control Id
11	PT	R	Processing Id
12	ID	R	Version Id
13	NM	O	Sequence Number
14	ST	O	Continuation Pointer
15	ID	O	Accept Acknowledgement Type
16	ID	O	Application Acknowledgement Type
17	ID	O	Country Code
18	ID	O	Character Set
19	CE	O	Principal Language of Message

SCH - Schedule Activity Information Segment

The SCH segment contains general information about the scheduled appointment. The following message represents an HL7 SCH message segment.

This segment has the following fields:

SCH — Scheduling

Element number 1 2 3 4 5 6 7 8

```
SCH|00331839401|||||58||HLCK^HEALTHCHECK ANY
```

Element number 9 10 11 12 13 15 16 17 18 19 20 22 25

```
AGE|20|MIN|^^^200803061000 ||||||JOHN||||VALERIE|||||ARRIVED|
```

SCH Message segment:

SEQ	Format	Option	Element / Field Name
1	EI	R	Placer Appointment ID
2	EI	O	Filler Appointment ID
3	NM	O	Occurrence Number
4	EI	O	Placer Group Number
5	CWE	O	Schedule ID
6	CWE	R	Event Reason
7	CWE	O	Appointment Reason
8	CWE	O	Appointment Type
9	NM	R	Appointment Duration
10	CNE	R	Appointment Duration Units
11	TQ	R	Appointment Timing Quantity
12	XCN	O	Appointment Timing Quantity
13	XTN	O	Placer Contact Phone Number
14	XAD	O	Placer Contact Address
15	PL	O	Placer Contact Location
16	XCN	O	Placer Contact Location
17	XTN	O	Filler Contact Phone Number
18	XAD	O	Filler Contact Address
19	PL	O	Filler Contact Location
20	XCN	O	Entered By Person
21	XTN	O	Entered By Phone Number
22	PL	O	Entered By Location
23	EI	O	Parent Placer Appointment
24	EI	O	Parent Filler Appointment ID
25	CWE	O	Filler Status Code
26	EI	O	Placer Order Number
27	EI	O	Filler Order Number

PID — Patient Identification Segment

The PID segment is found in every ORM message and contains 30 different fields with values ranging from patient ID number, to address, to marital status. The PID segment provides important identification information about the patient and is used as the primary means of communicating the identifying and demographic information about a patient between systems. AudBase will make use of the pertinent demographics within the PID Segment

PID — Patient Identification Segment

Element number 1 2 3 4 5 6 7 8 9 10

```
PID|1||489671|0|TIMON^MICERIO^||20080205|F||C|176215TH
```

Element number 11 12 13 14 16 18

```
STREET^HOUSTON^TX^00006||(xxx)xxx-1259|||S||999999999
```

Element number 19 21 25

```
||||||||||||
```

SEQ	Format	Option	Element / Field Name
0		R	Segment ID = "PID"
1	SI	O	Set ID - Patient ID
2	CX	O	Patient ID (External ID)
3	CX	R	Patient ID (Internal ID)
4	CX	O	Alternate Patient ID - PID
5	PN	R	Patient Name
6	PN	O	Mother's Maiden Name
7	TS	R	Date/Time of Birth
8	IS	R	Sex
9	PN	O	Patient Alias
10	IS	R	Race
11	AD	O	Patient Address
12	IS	O	County Code
13	TN	O	Phone Number - Home
14	TN	O	Phone Number - Business
15	CE	O	Primary Language
16	IS	O	Marital Status
17	IS	O	Religion
18	CX	O	Patient Account Number
19	ST	O	SSN Number - Patient
20	ST	O	Driver's License Number - Patient
21	CX	O	Mother's Identifier
22	IS	O	Ethnic Group
23	ST	O	Birth Place
24	ID	O	Multiple Birth Indicator
25	NM	O	Birth Order
26	IS	O	Citizenship
27	CE	O	Veterans Military Status
28	CE	O	Nationality
29	TS	O	Patient Death Date and Time
30	ID	O	Patient Death Indicator

PV1 — Patient Visit

The PV1 Patient Visit segment contains information about the encounter (a.k.a. Visit). This segment includes, amongst other things, the type of encounter, its start/end date and time, the admitting and attending physicians. AudBase will use data from this message to populate fields within the provider table of the AudBase database.

PV1 — Patient Visit

Element number 1 2 3 4 5 6 7

```
PV1||OUTPATIENT|AUDIOLOGY MAIN^^^10||||HHR^HUYEBABIE MD|1011
```

Element number 8 9 10 14 17 19 20 25 30 40

```
^YOSIMITES^SAMS||||||||||81637928|||||||||||||||||||||||
```

SEQ	Format	Option	Element / Field Name
0		R	Segment ID = "PV1"
1	SI	O	Set ID - PV1
2	IS	R	Patient Class
3	PL	R	Assigned Patient Location
4	IS	O	Admission Type
5	CX	O	Pre-admit Number
6	PL	O	Prior Patient Location
7	CN	R	Attending Doctor
8	CN	R	Referring Doctor
9	CN	O	Consulting Doctor
10	IS	O	Hospital Service
11	PL	O	Temporary Location
12	IS	O	Pre-admit test Indicator
13	IS	O	Readmission Indicator
14	IS	O	Admit Source
15	IS	O	Ambulatory Status
16	IS	O	VIP Indicator
17	CN	O	Admitting Doctor
18	IS	O	Patient Type
19	CX	O	Visit Number
20	FC	O	Financial Class
21	IS	O	Charge Price Indicator
22	IS	O	Courtesy Code
36	IS	O	Discharge Disposition
37	CM	O	Discharged to Location
38	IS	O	Diet Type
42	PL	O	Pending Location
43	PL	O	Prior Temporary Location
44	TS	O	Admit Date/Time
45	TS	O	Discharge Date/Time
46	NM	O	Current Patient Balance
47	NM	O	Total Charges
48	NM	O	Total Adjustments
49	NM	O	Total Payments
50	CX	O	Alternate Visit ID
51	IS	O	Visit Indicator
52	CN	O	Other Healthcare Provider

SEQ #s 23-35 are related to financial transactions and are not included in this *list of elements* as options. If financial information is required please reflect in order form

AI - Appointment Information

The AI segments contains information about various kinds of personnel (AIP), location (AIL), services (AIS) and general resources (AIG) that can be scheduled. Resources included in a transaction using this segment are assumed to be part of a schedule on a schedule filler application. Resources described by this segment are personnel resources, such as provider name and type. i.e.. Audiologist, Surgeon, Tech. etc.

AIP Segment — Personnel

SEQ	Format	Option	Element / Field Name
1	SI	R	Set ID
2	ID	O	Segment Action Code
3	XCN	R	Personnel Resource ID
4	CE	O	Resource Role
5	CE	O	Resource Group
6	TS	O	Start Date/Time
7	NM	O	Start Date/Time Offset
8	CE	O	Start Date/Time Offset Units
9	NM	O	Duration
10	CE	O	Duration Units
11	IS	O	Allow Substitution Code
12	CE	O	Filler Status Code

The AIL segment contains information about various kinds of location resources that can be scheduled. Resources included in a transaction using this segment are assumed to be part of a schedule on a schedule filler application. Resources described by this segment are location resources, such as facility ID, facility name, department or departmental code.

AIL Segment

SEQ	Format	Option	Element / Field Name
1	SI	R	Set ID
2	ID	R	Segment Action Code
3	PL	R	Location Resource
4	CE	R	Location Type (Facility Name)
5	CE	O	Location Group
6	TS	O	Start Date/Time
7	NM	O	Start Date/Time Offset
8	CE	O	Start Date/Time Offset Units
9	NM	O	Duration
10	CE	O	Duration Units
11	IS	O	Allow Substitution Code
12	CE	O	Filler Status Code

AI - Appointment Information Segment

The AIG segment contains information about various kinds of resources that can be scheduled. Resources included in a transaction using this segment are assumed to be part of a schedule on a schedule filler application. Resources described by this segment are general resources, such as equipment, that are identified with a simple identification code. (TBD).

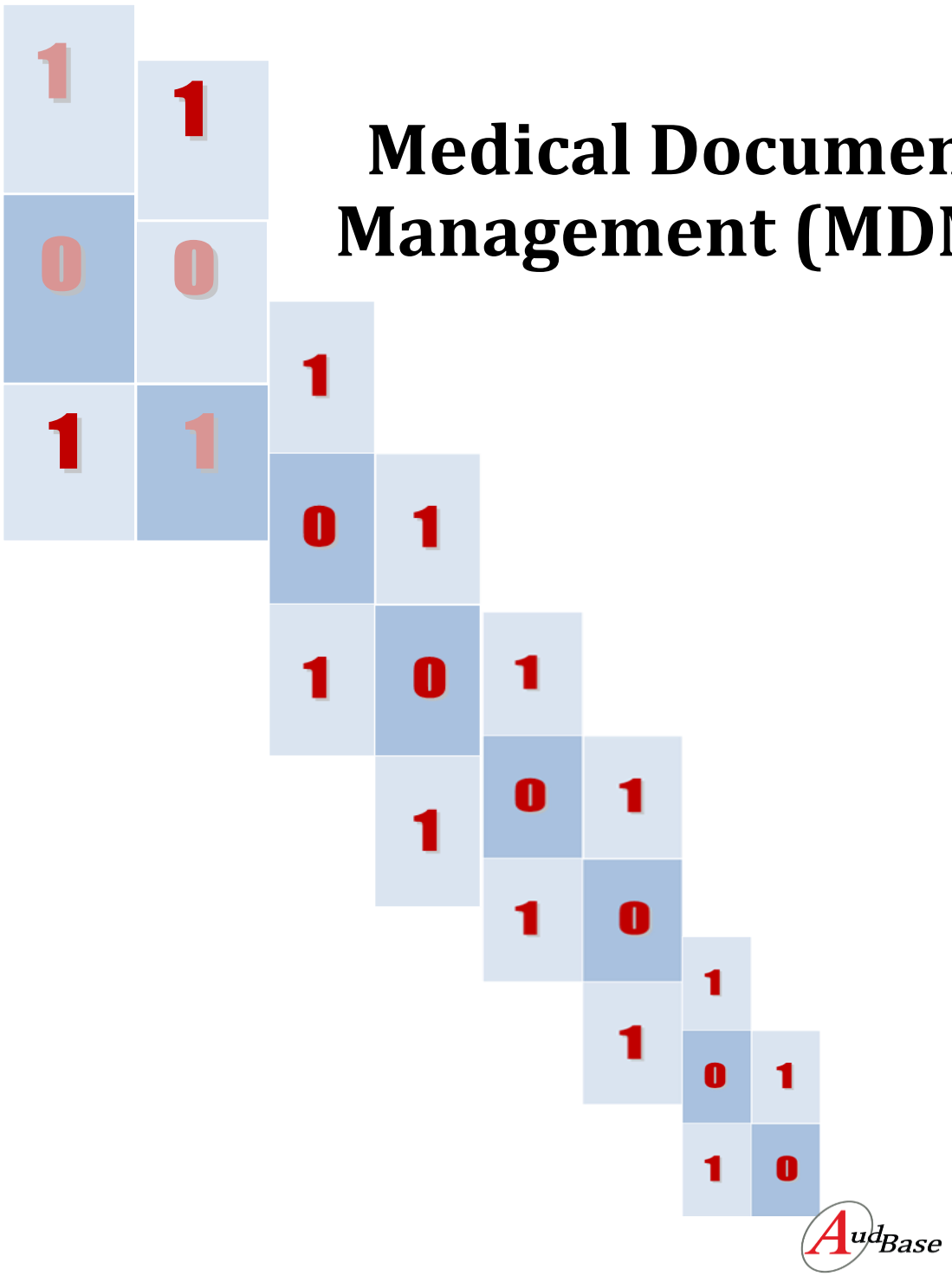
AIG Message segment:

SEQ	Format	Option	Element / Field Name
1	SI	R	Set ID
2	ID	O	Segment Action Code
3	CE	O	Resource ID
4	CE	R	Resource Type
5	CE	O	Resource Group
6	NM	O	Resource Quantity
7	CE	O	Resource Quantity Units
8	TS	O	Start Date/Time
9	NM	O	Start Date/Time Offset
10	CE	CE	Start Date/Time Offset Units
11	NM	O	Duration
12	CE	O	Duration Units
13	IS	O	Allow Substitution Code
14	CE	O	Filler Status Code

The AIS segment contains information pertaining to the services requested resources that can be scheduled. Resources included in a transaction using this segment are assumed to be part of a schedule on a schedule filler application. Resources described by this segment are service resources, such as procedure or test ID, procedure or test name.

AIS Segment

SEQ	Format	Option	Element / Field Name
1	SI	R	Set ID (Procedure)
2	ID	R	Segment Action Code
3	CE	R	Universal Service Identifier
4	TS	O	Start Date/Time
5	NM	O	Start Date/Time Offset
6	CE	O	Start Date/Time Offset Units
7	NM	O	Duration
8	CE	O	Duration Units
9	IS	O	Allow Substitution Code
10	CE	O	Filler Status Code


Medical Document
Management (MDM)
AudBase

HL7 MDM Message – Medical Document Management

The HL7 MDM message is used by AudBase to help manage medical records by transmitting newly created or updated documents to the host EMR. If required, AudBase can transmit important status information and/or updates for the patient encounter or record. Trigger event MDM T02 (Original document notification and content) is employed by AudBase. This message MDM can be created in relation to an order or independently of them.

AudBase uses this event. There are 11 different trigger events for the MDM message type provided in the HL7 standard. The most commonly used MDM message is the MDM-T02 because it acts like an ORU (Result) message. By definition, the MDM-T02 message notifies a system of creation of a document and includes the document contents.

The OBX segment is an important part of MDM messages that contain document contents, because it is used to separate the body contents along places where headings or other separations might occur. All MDM messages have the same message structure with the exception of the OBX segment. Message types that contain document contents are significantly longer, and may have repeating OBX segments depending on how much data needs to be conveyed

MDM Message

SEGMENT/ GROUP	NAME	OPTIONAL
MSH	Message header	Required
EVN	Schedule activity information	Required
Patient Group – Optional and repeatable group		
PID	Patient identification	Required
PV1	Patient visit	Required
PV2	Patient visit – additional info	Unused
Observation Group – Optional and repeatable group		
TXA	Document Status	Required
OBX	Observation	Required

Message Header

The HL7 MSH (Message Header) segment is present in every HL7 message type and defines the message's source, purpose, destination and character sets. It is always the first segment in a single HL7 message. AudBase will make use of header information such as Event Type, Date and Time, location origin of message, sending application (HIS) and Message Control ID.

Message Header

Element number 1 2 3 4 5 6 7

```
MSH|^~\&|AUDBASE|FACILITYA|CAREPRIME^HL7NOTES|AUDIO|200601051800001
```

Element number 8 9 10 11 12

```
||MDM^T01|20060105180000999999|T|2.3
```

SEQ	Format	Option	Element / Field Name
1	ST	R	Field Separator
2	ST	R	Encoding Characters
3	HD	R	Sending Application
4	HD	R	Sending Facility
5	HD	O	Receiving Application
6	HD	O	Receiving Facility
7	TS	R	Date/Time of Message
8	ST	O	Security
9	CM_MSG	R	Message Type
10	ST	R	Message Control Id
11	PT	R	Processing Id
12	ID	R	Version Id
13	NM	O	Sequence Number
14	ST	O	Continuation Pointer
15	ID	O	Accept Acknowledgement Type
16	ID	O	Application Acknowledgement Type
17	ID	O	Country Code
18	ID	O	Character Set
19	CE	O	Principal Language of Message

EVENT

There are 11 different trigger events for the MDM message type provided in the HL7 standard. The most commonly used MDM message is the MDM-T02 because it acts like an ORU (Result) message. By definition, the MDM-T02 message notifies a system of creation of a document and includes the document contents.

Event

Element number 1 2

```
EVN|T02|20060105180000
```

SEQ	Format	Option	Element / Field Name
0		R	Segment ID = "EVN"
1	ID	R	Event Type Code
2	TS	R	Recorded Date/Time
3	TS	O	Date/Time Planned Event
4	IS	O	Event Reason Code
5	CN	O	Operator ID
6	TS	O	Event Occurred

Event Types SEQ# 1

Value	Option	Description
T02		original document notification and content
T04		document status change notification and content
T10		document replacement notification and content

PID — Patient Identification Segment

The PID segment is found in every ORM message and contains 30 different fields with values ranging from patient ID number, to address, to marital status. The PID segment provides important identification information about the patient and is used as the primary means of communicating the identifying and demographic information about a patient between systems. AudBase will make use of the pertinent demographics within the PID Segment

PID — Patient Identification Segment

Element number 1 2 3 4 5 6 10 13 15 18

PID|1||1112388^BS||ESPARZA^MARIA|||||2|||||||063222111456|

Element number

SEQ	Format	Option	Element / Field Name
0		R	Segment ID = "PID"
1	SI	O	Set ID - Patient ID
2	CX	O	Patient ID (External ID)
3	CX	R	Patient ID (Internal ID)
4	CX	O	Alternate Patient ID - PID
5	PN	R	Patient Name
6	PN	O	Mother's Maiden Name
7	TS	O	Date/Time of Birth
8	IS	O	Sex
9	PN	O	Patient Alias
10	IS	O	Race
11	AD	O	Patient Address
12	IS	O	County Code
13	TN	O	Phone Number - Home
14	TN	O	Phone Number - Business
15	CE	O	Primary Language
16	IS	O	Marital Status
17	IS	O	Religion
18	CX	O	Patient Account Number
19	ST	O	SSN Number - Patient
20	ST	O	Driver's License Number - Patient
21	CX	O	Mother's Identifier
22	IS	O	Ethnic Group
23	ST	O	Birth Place
24	ID	O	Multiple Birth Indicator
25	NM	O	Birth Order
26	IS	O	Citizenship
27	CE	O	Veterans Military Status
28	CE	O	Nationality
29	TS	O	Patient Death Date and Time
30	ID	O	Patient Death Indicator

PV1 — Patient Visit

The PV1 Patient Visit segment contains information about the encounter (a.k.a. Visit). This segment includes, amongst other things, the type of encounter, its start/end date and time, the admitting and attending physicians. AudBase will use data from this message to populate fields within the provider table of the AudBase database.

PV1 — Patient Visit

Element number 1 2 3 5 8 10 15 20 25

```
PV1|1|O| AUDIOLOGY|||||Dr. SUESS|||||||||||||||||||
```

Element number

SEQ	Format	Option	Element / Field Name
0		R	Segment ID = "PV1"
1	SI	O	Set ID - PV1
2	IS	R	Patient Class
3	PL	R	Assigned Patient Location
4	IS	O	Admission Type
5	CX	O	Pre-admit Number
6	PL	O	Prior Patient Location
7	CN	O	Attending Doctor
8	CN	R	Referring Doctor
9	CN	O	Consulting Doctor
10	IS	O	Hospital Service
11	PL	O	Temporary Location
12	IS	O	Pre-admit test Indicator
13	IS	O	Readmission Indicator
14	IS	O	Admit Source
15	IS	O	Ambulatory Status
16	IS	O	VIP Indicator
17	CN	O	Admitting Doctor
18	IS	O	Patient Type
19	CX	O	Visit Number
20	FC	O	Financial Class
21	IS	O	Charge Price Indicator
22	IS	O	Courtesy Code
36	IS	O	Discharge Disposition
37	CM	O	Discharged to Location
38	IS	O	Diet Type
42	PL	O	Pending Location
43	PL	O	Prior Temporary Location
44	TS	O	Admit Date/Time
45	TS	O	Discharge Date/Time
46	NM	O	Current Patient Balance
47	NM	O	Total Charges
48	NM	O	Total Adjustments
49	NM	O	Total Payments
50	CX	O	Alternate Visit ID
51	IS	O	Visit Indicator
52	CN	O	Other Healthcare Provider

SEQ #s 23-35 are related to financial transactions and are not included in this *list of elements* as options. If financial information is required please reflect in order form

TXA - Transcription Document Header Segment

The TXA segment contains information specific to a transcribed document but does not include the text of the document. The message is created as a result of a Document Change Status. This information is used to update other healthcare systems to identify reports that are available in the transcription system. By maintaining the TXA message information in these systems, the information is available when constructing queries to the transcription system requesting the full document text.

TXA — Transcription Document Header

Element number 1 2 3 4 5

```
TXA|1|AUDIOREPORT|TX|200601051800|50041^SMITH^CHRIS^M|
```

Element number 6 7 8 9 11 12 13 15 16

```
200601051800|200601051800|200601051800||||1234567890||||Audio
```

Element number 16 17

```
ReportXXXX.PDF|PR
```

TXA Message segment:

SEQ	Format	Option	ELEMENT / FIELD NAME
1	SI	R	Set ID- Document
2	IS	R	Document Type
3	ID	R	Document Content Presentation
4	TS	O	Activity Date/Time
5	XCN	R	Primary Activity Provider Code/Name
6	TS	R	Origination Date/Time
7	TS	O	Transcription Date/Time
8	TS	O	Edit Date/Time
9	XCN	O	Originator Code/Name
10	XCN	O	Assigned Document Authenticator
11	XCN	O	Transcriptionist Code/Name
12	EI	R	Unique Document Number
13	ST	O	Parent Document Number
14	EI	O	Placer Order Number
15	EI	O	Filler Order Number
16	ST	R	Unique Document File Name
17	ID	R	Document Completion Status
18	ID	N/A	Document Confidentiality Status
19	ID	O	Document Availability Status
20	ID	O	Document Storage Status
21	ST	O	Document Change Reason
22	CM	R	Authentication Person, Time Stamp
23	XCN	O	Distributed Copies (Code and Name of Recipients)

OBX — Observation Result

The OBX segment is primarily used to carry key clinical observation/results reporting information within report messages, which must be transmitted back to the requesting system, to another physician system or to an archival medical record system. AudBase will result the audiogram within the OBX segment 5.and generally AudBase will identify the Audiogram result as encapsulated data (ED). AudBase can generate ORM messages and return the message to the EMR with the report or clinical information in the OBX-5 segment. In this case the ORM is used by the receiving system (HIS) to process the observation.

OBX — Observation Result

Element number 1 2 3 4 5

```
OBX|1|ED|AUDDOC^^AUDSFTLRR|| AUDBASE^application^pdf^Base64
```

Element number —— (5 continued) ——

```
^JVBERi0xLjIKekdf1fnfSqQYt7AjczYfpmRSIEyEcx8KMSAwIG9iago8PAovVHlwZS
```

Element number —— (5 continued) ——

```
AvQ2F0YWxvZwovUGFnZXMgMiAwIFIKL1BhZ2VMYXlvdXQgL09uZUNvbHVtbgovVmlld
```

Element number —— (5 continued) ——

```
2VyUHJlZmVyZW5jZXMgPDwKL0hpZGVUb29s.……(Base 64 code continued).
```

SEQ	Format	Option	Element / Field Name
0		R	Segment ID = "OBX"
1	SI	O	Set ID - OBX
2	ID	R	Value Type (ED, RP, TX or FT)
3	CE	R	Observation Identifier
4	ST	O	Observation Sub-ID
5	NM	R	Observation Value (Embedded AudBase Report Image or Link)
6	CE	R	Units
7	ST	O	References Range
8	ID	O	Abnormal Flags
9	NM	O	Probability
10	ID	O	Nature of Abnormal Test
11	ID	O	Result Status
12	TS	O	Date of Last Normal Values
13	ST	O	User Defined Access Checks
14	TS	O	Date/Time of the Observation
15	CE	O	Producer's ID
16	CN	O	Responsible Observer
17	CE	O	Observation Method

Observation Result (SEQ #2)

Value Type	Description
ED	Encapsulated Data
FT	Formatted Text
TX	Text Data
RP	Reference Pointer or UNC Name

HL7 Message Examples:

MSH|^~\&|AudBase|1|||20050110045504||**ADT^A01**|599102|P|2.3||EVN|A01|20050110045502|||||
PID|1||10006579^^^1^MRN^1||DUCK^DONALD^D||19241010|M||1|111 DUCK
ST^^FOWL^CA^999990000^^M|1|8885551212|8885551212|1|2||40007716^^^AudBase^VN^1|123121234||||||||||NO
NK1|1|DUCK^HUEY|SO|3583 DUCK RD^^FOWL^CA^999990000|8885552222||Y|||||||||||||
PV1|1|I|PREOP^101^1^1^^^S|3|||37^DISNEY^WALT^^^^^^AudBase^^^^CI|||01||||1|||37^DISNEY^WALT^^^^^^AccMgr^^^^
CI|2|40007716^^^AudBase^VN|4|||||||||||||||||||1||G|||20050110045253||||||
GT1|1|8291|DUCK^DONALD^D||111^DUCK ST^^FOWL^CA^999990000|8885551212||
19241010|M||1|123121234||||#Cartoon Ducks Inc|111^DUCK ST^^FOWL^CA^999990000|8885551212||PT|
DG1|1|I9|71596^OSTEOARTHROS NOS-L/LEG ^I9|OSTEOARTHROS NOS-L/LEG ||A|
IN1|1|MEDICARE|3|MEDICARE|||||||Cartoon Ducks Inc|19891001|||4|DUCK^DONALD^D|1|19241010|111^DUCK
ST^^FOWL^CA^999990000|||||||||||||||||123121234A||||||PT|M|111 DUCK ST^^FOWL^CA^999990000|||||8291
IN2|1||123121234|Cartoon Ducks
Inc|||123121234A|||||||||||||||||||||||||||||||||||||||||||||||||||||||||8885551212 IN1|2|NON-
PRIMARY|9|MEDICAL MUTUAL CALIF.|PO BOX 94776^^HOLLYWOOD^CA^441414776||8003621279|PUBSUMB|||Cartoon Ducks
Inc||||7|DUCK^DONALD^D|1|19241010|111 DUCK
ST^^FOWL^CA^999990000|||||||||||||||||056269770||||||PT|M|111^DUCK ST^^FOWL^CA^999990000|||||8291
IN2|2||123121234|Cartoon Ducks Inc|||||||||||||||||||||||||||||||||||||||||||||||||||||||||8885551212
IN1|3|SELF PAY|1|SELF PAY||||||||||5||1

MSH|^~\&|AudBase|1|||20050110045504||**ADT^A01**|599102|P|2.3|||
EVN|A01|20050110045502|||||
PID|1||10006579^^^1^MRN^1||DUCK^DONALD^D||19241010|M||1|111 DUCK
ST^^FOWL^CA^999990000^^M|1|8885551212|8885551212|1|2||40007716^^^AudBase^VN^1|12
3121234||||||||||NO NK1|1|DUCK^HUEY|SO|3583 DUCK
RD^^FOWL^CA^999990000|8885552222||Y|||||||||||||
PV1|1|I|PREOP^101^1^1^^^S|3|||37^DISNEY^WALT^^^^^^AudBase^^^^CI|||01||||1|||37^D
ISNEY^WALT^^^^^^AccMgr^^^^CI|2|40007716^^^AudBase^VN|4|||||||||||||||||||1||G|||
20050110045253|||||| GT1|1|8291|DUCK^DONALD^D||111^DUCK
ST^^FOWL^CA^999990000|8885551212||19241010|M||1|123121234||||#Cartoon Ducks
Inc|111^DUCK ST^^FOWL^CA^999990000|8885551212||PT| DG1|1|I9|71596^OSTEOARTHROS
NOS-L/LEG ^I9|OSTEOARTHROS NOS-L/LEG ||A|

MSH|^~\&|GPMS|CTX||MED2000|200803060953||SIU^S14|20080306953450|P|2.3||||||||
SCH|00331839401|||||58||HLCK^HEALTHCHECK ANY AGE|20|MIN|^^^200803061000
|||||JOHN||||VALERIE|||||ARRIVED|
PID|1||489671|0|TIMON^MERCRIO^||20080205|F|||176215TH STREET^HOUSTON^TX^77306||(832)795-
8259|||S|||999999999||||||||||||
PV1|1|OUTPATIENT|AUDIOLOGY MAIN^^^10||||HHR^HUYEBABIE
MD|^|||||||||||||||||||||||||||||||||||| ||||||||||
RGS|1|||
AIL|1||HHR^FPCS NGUYEN, MD||||||||||
NTE|1||1MONTH HLCK^^|
AIP|1||PBN^LISAPORTER|50|||||||||